



NORTHERN NIGERIA

MINISTRY OF HEALTH

# **RURAL HEALTH REPORT 1965**

*Including:—*

*Annual Report of the Sleeping Sickness Service for 1965*

*Annual Report of the Medical Field Units for 1965*

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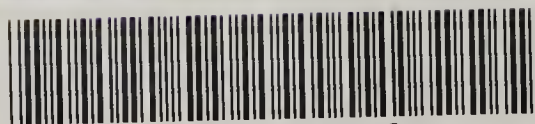
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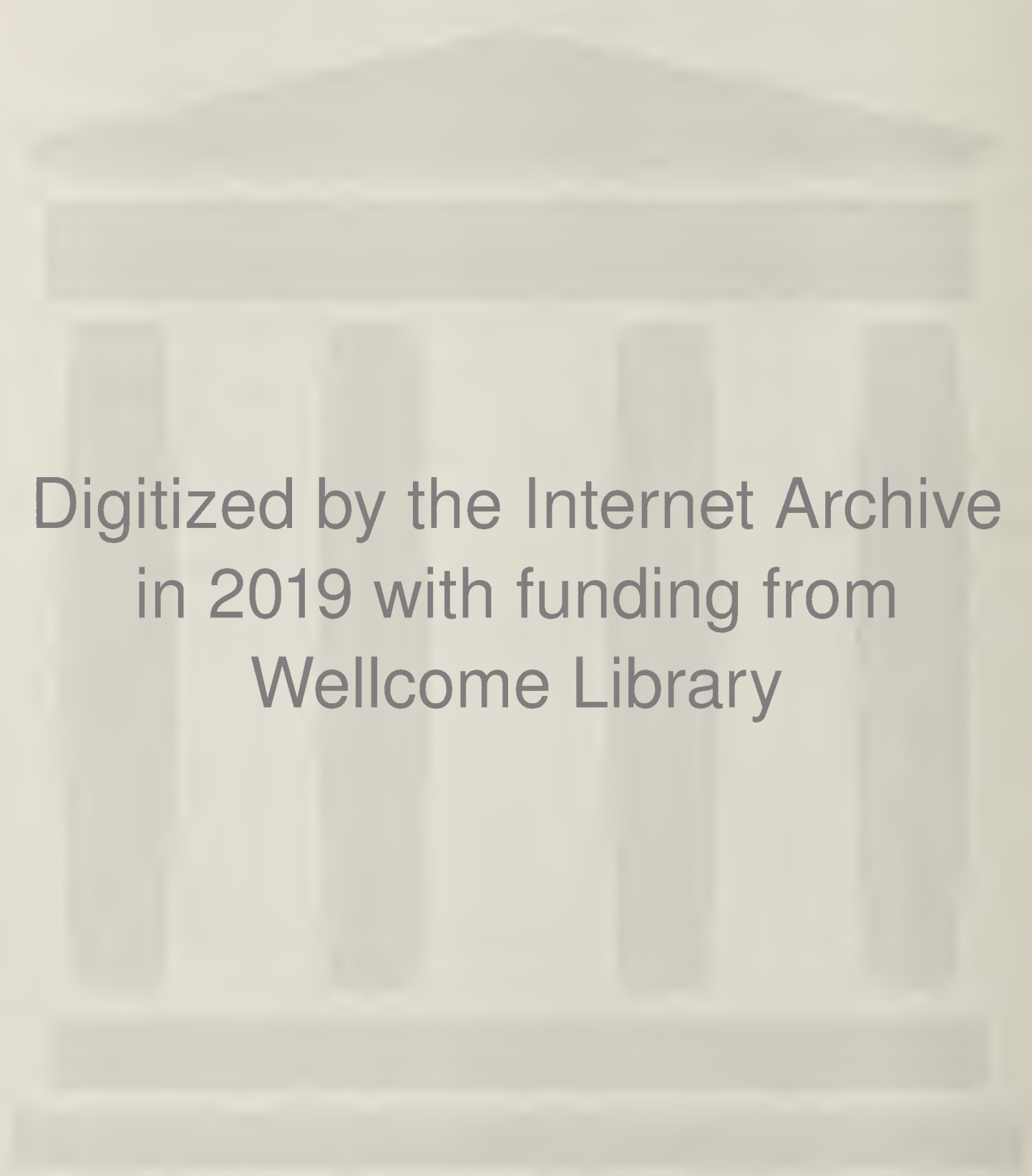
## I N T R O D U C T I O N

Dr. K.D.B. Thomson, O.B.E., Principal Health Officer, Rural Health, before proceeding on leave in August 1966, had left behind a draft for the 1965 Annual Report on S.S. Service for 1965. The account of the other activities of the Rural Health Section of the Ministry of Health included here have been compiled from the Annual Reports submitted by Officers incharge of Rural Health Centres, Medical Field Units and other Units engaged in Rural Health work.

This report, with the exception of the Chapter on Sleeping Sickness, deals only with the existing operations and the findings of the various Sections without going into details of the actual procedures involved or any future plans organized. Any omission or shortcomings noted in this report therefore, compared with recent previous Annual Reports submitted by this office, is regretted.

DR. Z.Q. SHAIKH,  
Ag. Principal Health Officer,  
Rural Health.





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RURAL HEALTH REPORT, NORTHERN NIGERIA, 1965.

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1.1 Organisation of Preventive Services Division:  
(Rural Health)

There was no major change during the year under review. The administrative organisation is explained on page eleven of the Rural Health Report for 1963.

1.2 Senior Staff - joining the Service.

Dr. O. Adeyemi was posted to the Preventive Services from the Curative Services Division in July 1965, and is now Rural Medical Officer in-charge of No.6 Medical Field Unit at Idah, and W.H.O. Rural Health Development Project - Igala-Idoma Divisions - Nigeria 23.

Dr. P.O. Adeoye was also posted to the Preventive Services from the Curative Services Division. He was Rural Medical Officer in-charge of No.3 Medical Field Unit at Argungu from early 1965 until 23rd September, when he proceeded to the United Kingdom for a year's Postgraduate Course in Tropical Public Health at the London School of Hygiene and Tropical Medicine.

Dr. M.I. Lander joined the staff of the Medical Auxiliaries Training School, Kaduna, in April 1965, under the Technical Assistance Scheme of the United Kingdom Ministry of Over-seas Development, and is concerned particularly with the Training of students on the various Courses conducted at that institution.

Dr. P.W. Lin, W.H.O. Sanitary Engineer, arrived in August 1965, to relieve Mr. V.A. Pinto who was then engaged in the Environmental Sanitation aspect of the W.H.O. Project Nigeria - 23. He resigned his appointment after four months stay in the country and departed for the U.S.A.

Mr. K.F. Fraser, Entomologist, United Kingdom Technical Aid Scheme, arrived on 12th January, 1965. He is attached to the Simulium Control Unit and stationed at Bauchi.

1.3 Senior Staff - retirements.

Dr. D.I. Leiker, the Consultant Leprologist of the Leprosy Control Section left the Service on 29th July, 1965. During his short tenure of office in this Ministry, he contributed much to the organisation and training of personnel of the Leprosy Service.



Mr. J.O. Steiner, M.B.E., Principal Control Officer of the Tsetse Control Section of this Ministry, retired in July 1965, after 17 years of meritorious service in Northern Nigeria, and left for the United Kingdom.

Dr. E.C.M. Wennen, previously Rural Medical Officer at Argungu, who joined the Service in 1960, resigned in June 1965, to take up an appointment with the Institute of Public Health, University College Hospital, Ibadan.

Dr. M.S. Hasan, Rural Medical Officer, Idah, resigned his appointment with effect from 15th July, 1965, and left the Service on termination leave at the end of his first tour.

Mr. R.G. Templeton, Entomologist, Sleeping Sickness Service, after spending two years supervising S.S. work in Bida, left the Service on 2nd September, 1965, and departed for the United Kingdom.

Two Medical Officers, Dr. Toben Tofte and Dr. Sven Olsen who joined the Leprosy Service in October 1963 under Swedish Technical Aid, left the country in April 1965.

Mallam Sule Bauchi who was one of the first indigenous officers to be promoted to the rank of Rural Health Superintendent retired in May 1965 after 30 years service in this Section of the Ministry.

#### 1.4 Junior Staff - Recruits.

12 Government sponsored students passed the Basic Course examination at M.A.T.S., Kaduna, in January 1965. 8 were absorbed by the Leprosy Control Section as Leprosy Assistants and the rest were posted to various S.S. Units as S.S. Assistants.

10 candidates were selected for training as Rural Health Assistants at the April 1965 intake of Medical Auxiliaries Training School, Kaduna.

#### 1.5 Junior Staff - Losses.

Two staff were lost to the Service during the year:

1 M.F.U. Assistant resigned to join the Kano N.A.

1 S.S.S. Assistant retired after long service.

Three 1st Class S.S.S. Assistants retired in 1965 but were subsequently re-engaged as 2nd Class Assistants on a temporary basis.



1.6 Establishment:

The Staff disposition of the Rural Health Section of the Preventive Services Division of the Ministry as at the end of 1965 is tabulated on the following page.

2. TRAINING.

2.1 The Final Examination (MATS) which was scheduled to be held in January 1965, was conducted in late December 1964 before Ramadan which occurred in the following month. There were 98 candidates, out of which 85 were successful, viz:-

<u>Sponsoring Authority.</u>	<u>No. of students who sat the examination</u>	<u>No. of successful students</u>
Govt.: - M.F.U/S.S.S.	12	12
N.A.: - Disp. Assistants	73	61
Mission " "	<u>13</u>	<u>12</u>
Total	<u>98</u>	<u>85</u>

A supplementary examination was held in July 1965 for the 13 failures, out of which 4 were successful. Those who failed for the second time were not permitted to take the examination again.

<u>Sponsoring Authority.</u>	<u>No. of students who took the supplementary exam.</u>	<u>No. of students who passed.</u>
N. A. -	12	4
Mission -	<u>1</u>	<u>-</u>
Total	<u>13</u>	<u>4</u>

2.2 In addition, the following courses were conducted at the Medical Auxiliaries Training School during 1965:-

Leprosy Attendants course No.15 was attended by 37 N.A. students. The course which was conducted in English as well as in Hausa was of 12 weeks duration. 34 candidates were successful in the examination conducted at the end of the course.

Assistant Leprosy Inspectors course No.9 which was of six months duration was conducted for 8 Government and 27 N.A. Staff engaged in Leprosy work. All the 8 Government and 23 N.A. candidates were successful in the examination held at the end of the course.

	<u>Establishment</u>	<u>Actual</u>	<u>Under Training</u>	<u>Remarks</u>
Principal Health Officer	1	1		
M.O.s of Health/Rural Medical Officers	6	2		
S.S. Medical Officers	2	1		
Senior Consultants, Leprosy (or Consultants)	2	-		
Medical Officers, Leprosy	2	-		
Principal, M.A.T.S.	1	1		1 UKTA not held against Establishment.
Medical Officers (Lecturers)	2	1		1 UKTA not held against Establishment.
Entomologists (MFU and SSS)	5	1	2	
Principal Control Officer	1	1		
Senr.Supts.,Supts.& Asst.Supts., Rural Health	25	24		Including Staff at MATS
Medical Field Unit Inspectors	16	16		
Medical Field Unit Assistants	123	105	10	Due to qualify 1966
Senr. Supts;& Asst. Supts. Rural Health, Sleeping Sickness Service.	10	10		
Sleeping Sickness Inspectors	18	18		
Sleeping Sickness Assistants	134	132		
Senr.Control Officers, Control Officers & Asst. Control Officers, S.S.S.	22	18	1	2 in training - U.S.A.
Senr. Tsetse Control Inspectors & Tsetse Control Inspectors	15	14		
Tsetse Control Assistants	78	65	10	
Senr.Supts., Supts.& Assist.Supts. Rural Health, Leprosy	17	10		
Leprosy Inspectors	15	14		
Leprosy Assistants	15	11		

(Plus Artisans, Storekeepers, Laboratory Attendants, etc.)



The posting of a Tutor Medical Officer (U.K.T.A.) to M.A.T.S. was of great assistance to the Acting Principal of the School who was until then the only doctor available to teach the students. Great emphasis was given to the clinical aspect of the training. At the end of the year the teaching staff consisted of:-

Acting Principal;

1, Tutor Medical Officer (U.K.T.A.);

5, Senior Superintendent/Superintendents/Asst.Supts;

3, M.F.U/S.S.S. Inspectors;

2, Leprosy Inspectors;

1, Laboratory Technician;

3, M.F.U. Assistants.

The School has hostel accommodation for 152 students only, which is occupied by the Basic Course students.

The elderly and married students of the Basic course and all the students of other courses are accommodated in the town.

### 3. MEDICAL FIELD UNITS AND R.H. CENTRES.

3.1 A new Unit was created at Jalingo in April 1965. This area was formerly supervised by the Officer in-charge No.1 M.F.U., Makurdi. This new Unit has a combined responsibility of controlling Yaws as well as Sleeping Sickness. The Yaws work is supervised by the Rural Health Superintendent in-charge of the Unit. The S.S. work in its area of jurisdiction is supervised by the Officer in-charge S.S. Service, Bauchi, who draws up the programme of activity for the S.S. staff based at Jalingo.

There has been no change in the working of Medical Field Units at Makurdi, Keffi and Idah.

### 3.2 Rural Health Centre, Argungu.

Throughout the year the centre had the services of a Rural Medical Officer. It showed progress in the Preventive and Curative Services to the Community of that area.

A local Health Committee was engaged in Health Education at the Centre, in the schools and at various treatment centres. In all, 27259 persons were vaccinated during the year by the staff of the centre assisted by N.A. staff. 235 cases of C.S. Meningitis, 22 cases of Smallpox, 963 cases of Measles, 35 cases of Tuberculosis, 465 cases of



Gonorrhoea are amongst the cases treated by the Centre during 1965.

### 3.3 Rural Health Centre, Kankiya.

No Rural Medical Officer was available for this Centre throughout the year. The functions of the centre were supervised by the Health Superintendent in-charge of the Unit. The W.H.O. Insecticide Research Team is based at Kankiya and the Medical Officers of the team have been very helpful in giving professional advice to the staff in case of emergencies.

45 students from the School of Hygiene, Kano, had Field Training in environmental Hygiene and Sanitary improvement at Kankiya. Construction of well tops, slaughter slabs, compost pits, washing places, drains and pit latrines in villages around Kankiya were undertaken as part of their training.

### 3.4 Rural Health Centres Ankpa and Otukpa.

The Rural Health Development Project - Nigeria 23 has made provision for 3 Rural Health Centres. Rural Health Centre, Ankpa, was the first to be completed in 1962. The second one was completed in 1965 at Otukpa. Both these centres which are managed by Rural Health Superintendents under the supervision of the Rural Medical Officer, Idah, were officially opened on 23rd August, 1965 by the Parliamentary Secretary, Ministry of Health, Kaduna.

## 4. TUBERCULOSIS UNIT.

The Tuberculosis Unit, which is based at Jos is staffed with one Rural Health Superintendent and 12 M.F.U. Assistants who carry out Anti-Tuberculosis work under the guidance and supervision of the Consultant (Tuberculosis). The work mainly consists of:

(a) - B.C.G. vaccination to new born babies in the Maternity Centres (Kaduna - Jos);

(b) - Tuberculin Testing and B.C.G. vaccination to those who require them in the following selected population:

Children (0-5 years) through a mass campaign from Province to Province.

All School Children.

All teachers and their families.

All Govt. and N.A. Officials and their families.

(continued)

Contacts of all T.B. patients.

Treatment of T.B. patients in the  
General Hospital, Jos.

Advice on Treatment of T.B. patients  
at other hospitals.

The above work was extended to Bornu, Sardauna,  
Bauchi, Plateau and Zaria Provinces and Kaduna Capital  
Territory.

There was no Tuberculosis Medical Officer to  
assist the Consultant during the year and hence the pro-  
gress in coverage of the area was less than anticipated.

A Tuberculin Survey has been done in about a  
million people since 1961 amongst different crosssections  
of the population. The Tuberculin indices vary very little  
between the Urban and Rural population in the adult age  
group, but children in Urban areas have higher tuberculin  
positivity than children in Rural areas. The average per-  
centage of positivity which is about 50% in all groups gives  
the impression of wide-spread pulmonary Tuberculosis infec-  
tion in the community. The percentage of non-respiratory  
forms of T.B. is rather low.

The following are the figures for the work of  
the Chest Clinic and T.B. Ward, Jos:-

Total number of new patients diagnosed as suffering from T.B. -	289
Total number of patients attending the Tuberculosis out-patient department -	6155
Total number of T.B. patients admitted into T.B. Ward -	281
Total number of T.B. patients discharged after disease has been arrested -	265
Total deaths from T.B. while admitted -	40

Statistics for the work of T.B. Unit for the  
whole Region are given in the tabular form on the following  
page.



PROVINCE	TUBERCULOSIS - 1965 CATEGORY OF PERSONS EXAMINED AND/OR VACCINATED (EXCLUDING INFANTS)	TUBERCULIN TESTED			TOTAL NUMBER OF B.C.G. VACCINATIONS GIVEN IN PROVINCE (INCLUDING INFANTS)
		NO. TESTED	NO. POSITIVE	NO. NEGATIVE	
BENUE	School Children	31,640	12,308	18,796	
	Govt. & N.A. Officials and their Families	1,915	1,034	620	
	Selected Population - Gboko Town	159	60	79	25590
BAUCHI	Employees Dabbo Mining Camp	192	120	72	
BORNU	School Children	25,009	8,200	15,974	
	Govt. & N.A. Officials and their Families	5,001	3,310	981	
	Selected Population	5,183	3,086	1,255	37,659
KANO (AT MOH OFFICE)	Selected Population	?	?	?	621
PLATEAU	Contacts and referred Cases - T.B./O.P.D., Jos General Hospital	7,016	3,005	1,669	
	School Children	10,566	5,114	4,930	
	Population - Miango and Kwon villages	2,123	590	1,010	
	O.P. Dept., Jos General Hospital	3,516	758	550	
	Employees Makeri Smelting Company	168	156	11	
	Govt. & N.A. Officials and their Families	472	181	169	11,686
SARDAUNA	School Children	1,705	600	1,096	1,665
ZARIA	School Children	31,188	12,093	16,614	
	Govt. & N.A. Officials and their Families	1,437	983	280	
KADUNA	School Children	290	36	241	
C.TERRITORY	Govt. & N.A. Officials and their Families	2,967	1,240	1,019	
	Residents Housing Estate	893	293	387	
	Community Survey	2,811	1,038	1,123	
AT M.O.H.) OFFICE KADUNA }	Contacts	1,031	598	330	33,819
	T O T A L S	135,282	54,803	67,206	111,112



The Government Leprosy Control Unit is the Advisory and Supervisory Body to the Native Authorities and Mission Institutions which carry out the actual treatment of the patients.

The Government Leprosy Unit had the following staff during 1965:-

- 1, Consultant Leprologist (Dr. D.I. Leiker until his retirement in July).
- 2, Senior Superintendents, Rural Health, one based at Kaduna and the other at Jos.
- 8, Superintendents and Assistant Superintendents.
- 14, Leprosy Inspectors.
- 11, Leprosy Assistants.

Patients suffering from Leprosy attend the Leprosy Clinics run by N.As. and Missions for their weekly treatment by Dapsone Tablets. The fourteen Provincial Leprosy Settlements which are administered by Missions serve as Hospitals where patients requiring hospitalization either for surgical intervention or complications of treatment are referred for admission. These institutions receive maintenance Grants from the Government.

During 1965, 63,092 new patients were registered for treatment at various treatment centres bringing the total number of patients, old and new, who received treatment to 274,211. The number of Leprosy treatment centres rose by 127 to 1,875. The number of treatment villages was reduced from 56 to 32 during the year due to the popularity and increased number of Leprosy out-patient clinics.

The Provincial Leprosarium, Zaria, which was administered by the Church Missionary Society was taken over by the Government in October 1965. The Mission had informed the Ministry of its inability to continue the management of the Settlement, and all efforts by the Ministry of Health to find another Voluntary Agency to take over the administration of the Leprosarium failed.

UNICEF contributed by supplying Dapsone, the standard drug for treatment, and the transport for the control of Leprosy in **the Region**.

The following table refers to the Leprosy work carried out in the Northern Region.

LEPROSY RETURNS 1965.

PROVINCE	LEPER SETTLEMENT	VOLUNTARY AGENCY	NUMBER OF BEDS	IN PATIENTS	OUT PATIENTS	TOTAL PATIENTS	TREATMENT VILLAGES	OUT PATIENT CLINICS	NEW PATIENTS	TOTAL PATIENTS	PATIENTS DISCHARGES.
ADAMAWA	GARKUDA	C.B.M.	88	382	149	531	2	110	3,580	9,860	1,964
BAUCHI	BANYARA	S.I.M.	32	175	47	222	4	195	9,643	30,187	715
BENUE	MKAR	S.U.M.	63	308	69	377	16	280	9,817	44,057	1,568
BORNU	MOLAI	S.U.M.	36	229	239	468	-	139	3,143	10,981	286
ILORIN	OMU-ARAN	S.I.M.	32	273	-	273	1	74	1,901	7,990	398
KABBA	OCHADAMU	Q.I.M.	32	114	189	303	-	87	1,583	8,338	283
KABBA	OYI-RIVER	S.I.M.	28	156	15	171	-	-	-	-	-
KANO	YADAKUNYA	S.I.M.	60	318	58	376	-	139	6,464	45,357	6,601
KATSINA	BABARUGA	S.I.M.	16	379	-	379	-	73	6,284	35,998	85
NIGER	CHANCHAGA	S.I.M.	48	78	-	78	-	231	5,894	31,528	2,693
PLATEAU	MONGU	S.U.M.	32	92	32	124	3	183	1,872	7,837	1,065
PLATEAU	ALUSHI	S.U.M.	12	43	47	90	3	-	-	-	-
SARDAUNA	-	-	-	-	-	-	-	67	1,233	5,361	673
SOKOTO	AMANAWA	S.I.M.	26	409	-	409	3	145	7,343	19,218	1,645
ZARIA	SAYE	GOVT.	30	94	81	173	-	152	4,335	17,499	5,712
KADUNA	-	-	-	-	-	-	-	-	-	-	-
T O T A L			535	3,050	926	3,974	32	1,875	63,092	274,211	23,688



RURAL HEALTH REPORT, 1965.

Corrigenda for pages 11 to 35 - Trypanosomiasis.

Some of the statistics (beginning "Team Resurveys") at the end of each Provincial Section on Trypanosomiasis, differ from figures given in the narrative sections preceding them. These discrepancies are consequent upon junior staff changes, and other difficulties in compiling full statistics, after Dr. Thomson had completed the narrative part of the report and departed on leave.

In general, the narrative figures are more correct than the others, but the only major corrections necessary are given below:

- (i) Para.6.3, line 10; delete "277" insert "477".
- (ii) Para.6.4, line 16; delete "79" insert "123".
- (iii) Para.6.4, 3 lines from the bottom; total S.S. cases in Biu, delete "242" insert "123".
- (iv) Page 16, bottom line; total S.S. cases, team resurveys, Bornu Province; delete "258" insert "139".
- (v) Page 30, 4th line of table, Bornu; delete "258" in 2nd column insert "139";  
delete "283" in 9th. column insert "164".
- (vi) Page 30, bottom line totals: delete "861" in 2nd. column insert "742".
- (vii) Page 30, bottom line totals: delete "2189" in column 9 insert "2070".
- (viii) Page 31, 4th line of table, Bornu; delete "251" in 3rd. column insert "132";  
delete "258" in 6th. column insert "139".
- (ix) Page 31, bottom line of table, 3rd. column; delete "752" insert "633".
- (x) Page 31, bottom line of table 6th. column, delete "861" insert "742".
- (xi) Page 31, "Total Cases" below table; delete "1,151" insert "1,032".
- (xii) Page 35, upper table:
  - 3rd column (top line) delete "752" insert "633".
  - " " (bottom line) delete "978" insert "859".
  - 6th column (top line) delete "861" insert "742".
  - " " (bottom line) delete "1,159" insert "1,040".





6. TRYPANOSOMIASIS: BY DR. K.D.B. THOMSON, O.B.E., PRINCIPAL  
HEALTH OFFICER, PREVENTIVE SERVICES DIVISION.

6.1 ADAMAWA PROVINCE.

The annual resurveys of selected village areas in Bakundi, Muri, Jalingo and Mutum Biyu districts have now apparently reduced transmission of Sleeping Sickness to a low level - only 11 "new" cases were diagnosed in the latter 3 districts, with a total of 24 cases compared to 50 in 1964. Bakundi district, where we are concerned with the focus at Kungana Habe extending in both directions along the Serti-Takun road which passes through it, was surveyed in December 1964 (50 S.S. cases), and not again until January 1966, when only 8 cases (including 4 "new" ones) were found. These latter will be included in the 1966 report statistics, but it is relevant to comment that the measures taken here have proved very effective. In addition to the "S.V.A." (Selected Village Area) surveys during the last few years, which at Kungana alone had failed to improve the position, pentamidine prophylaxis was given to 322 villagers at Kungana itself in December 1964, and again (to 327 persons) in July 1965. This exercise was repeated after only 7 months as the first attempt had reached only 70% of the tax-register population; after the July 1965 repetition, however, the Team Leader commented that most of the 150 absentees were living in old Kungana 20 miles away and not near tsetse infested streams, and their absence was therefore irrelevant. However, such comment does emphasise the effect of the recently-constructed main road upon the sleeping sickness problem - bringing about a regrouping of the scattered population into more compact communities adjacent to tsetse-infested water-supplies along this road.

The survey in Ga'anda district of Adamawa Emirate was undertaken to conclude delimitation of the Biu epidemic, as the area is adjacent to Biu just south of the R. Hawal. The absence of any cases here confirms that the outbreak was limited to Biu Division.

Team Resurveys.

<u>District</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Muri	2,304	10	0.4
Jalingo	1,785	7	0.4
Mutum Biyu	5,822	7	0.1
Lau	6,253	-	-
Ga'anda	<u>6,848</u>	<u>-</u>	<u>-</u>
Total Team Resurveys	23,012	24	0.1
<u>Disp./Hosp. Resurveys</u>	<u>-</u>	<u>-</u>	<u>-</u>
Grand Total	<u>23,012</u>	<u>24</u>	<u>0.1</u>



Voluntary Cases.

<u>Hospital/dispensary</u>	<u>New</u>	<u>Clinical</u>	<u>Relapsed</u>	<u>Total</u>
D. M. H. Numan	-	9	-	9
Didango Treatment Centre	-	3	-	3
Mutum Biyu Treatment Centre	1	1	-	2
Mayorennewo "	-	1	2	3
Kungana "	1	-	-	1
Total Voluntary Cases	<u>2</u>	<u>14</u>	<u>2</u>	<u>18</u>

	<u>No.Examined</u>	<u>S.S.cases</u>	<u>% S.S.</u>
Mines Camps	-	-	-
M.O.W. Labourers	-	-	-
Timber Extr.	-	-	-

6.2

BAUCHI PROVINCE.

It is difficult to avoid a feeling of satisfaction with regard to many of the recent outbreaks in Bauchi Province. The outbreaks of Sleeping Sickness in Jama'a, Duguri, Bula and Zungur districts were reported at length last year. The surveys in Jama'a and Duguri this year (and Bula and Zungur early in 1966) revealed only a few residual cases.

The outbreak in Yamaltu district of Gombe Emirate, connected with a small forest reserve on the main Gombe-Biu road, appears to have been almost extinguished by the tsetse control and surveys of the last two years. Only 4 cases were found during 1965, and of the two gland-positive cases ("new"), one had been punctured in 1964 but without finding trypanosomes, and the other had been in Yola when the previous survey was conducted; there was thus no evidence of recent transmission here.

In the area covered by the Ningi tsetse control scheme - resprayed and extended this year - 7 new S.S. cases were diagnosed (with 6 "relapses"). At the time of writing (August 1966) full control of G.tachinoides appears to have been achieved however, and there should be no further transmission here.

However, the outbreak along the Misau-Dingaiya river still flourishes, with 20 cases in Darazo district compared with 31 last year, and a further 28 in Yarima district of adjacent Misau Emirate. (See map with 1964 Report). Tsetse control measures by the Veterinary Tsetse and Trypano-



somiasis Unit are now covering the area, and there should be no further transmission after 1965. Close liaison has been maintained between the two Ministries in this connection.

Team Resurveys:

<u>District</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Kirfi	14,836	2	0.01
Fali	17,876	-	-
Darazo	19,409	20	0.09
Duguri	13,992	8	0.05
Jarawa	5,131	2	0.03
Nafada	15,600	-	-
Yamaltu	9,794	4	0.04
Ningi	2,668	13	0.4
Katagum	1,821	-	-
Gamawa	2,461	-	-
Sakwa	2,304	-	-
Itas	6,296	1	0.01
Yarima	2,872	11	0.38
Total Team Resurveys	<u>115,060</u>	<u>61</u>	<u>0.05</u>

<u>Disps./Hosps. Resurveys</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Bauchi N.A. Disp.	2,005	1	0.04
Ningi " "	1,281	1	0.08
Darazo " "	734	2	0.2
Azare Hospital	11,414	-	-
Gombe " "	14,243	12	0.8
Total Dispensaries/ Hospitals Resurveys	<u>29,677</u>	<u>16</u>	<u>0.05</u>
Total All Resurveys	<u>144,737</u>	<u>77</u>	<u>0.05</u>

Voluntary Cases:

<u>Hospital/dispensary</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
Pengal Disp.	-	9	2	11
Rishi "	4	1	-	5
Gadai "	2	1	-	3
Ningi "	3	-	2	5
Bauchi Hospital	11	2	14	27
Azare "	-	2	5	7
Gombe "	<u>8</u>	<u>5</u>	<u>1</u>	<u>14</u>
Total Vol. Cases	<u>28</u>	<u>20</u>	<u>24</u>	<u>72</u>

	<u>No. Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Mines Camps	20,243	2	0.009
M.O.W. Labour	206	-	-
Timber Extr.	-	-	-
Grand Total	<u>20,449</u>	<u>2</u>	<u>0.009</u>

### 6.3 BENUE PROVINCE.

Disturbed conditions prevented Team Survey work from being carried out in Tiv and Wukari Divisions until the end of the year. However, the Sleeping Sickness Inspector at Igbor dispensary, 23 miles due south of Makurdi in the heart of the worst endemic area in the Division, succeeded in finding 63 cases out of 11,000 examined by Dispensary resurvey, and treated a further 30 voluntary cases. The total number of voluntary cases for the Province - the vast majority of which were diagnosed in Tiv and Wukari Divisions - was 502 compared with 277 last year; 120 of these were recorded as "relapses", and 118 as "clinical" cases. (Following a visit to the area early in 1966, instructions have been issued that all cases not proved to be "early" by lumbar puncture should be treated with Melarsen until further notice, in the hope of reducing the relapse rate. See remarks under "Therapy; diagnosis", para.12.2 of the 1964 Report).

The 25 cases found in Keffi Emirate - Yeskwa and Keffi districts - were localised to a few village areas, but suggest the need for repeated S.V.A. resurveys for a few years.

#### Team Resurveys.

	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Yeskwa	12,243	18	0.14
Keffi	13,931	4	0.02
Kokona	24,795	3	0.01
Gboko Town	6,311	3	0.04
Mbaterem	6,318	2	0.03
Ipav	13,401	5	0.03
Ikurav-Ya	12,804	10	.07
Mbagen	15,551	3	0.01
Jibu (Kinda-Kuv-Yo)	<u>2,920</u>	<u>4</u>	<u>0.13</u>
Total Team Resurveys	<u>108,274</u>	<u>52</u>	<u>0.04</u>



<u>Disps./Hosps. Resurveys</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Abinsi Dispensary	1,034	1	0.09
Igbor "	4,308	47	1.09
Katsina-Ala "	7,159	15	0.2
Ibi "	6,456	5	0.07
Bantaji "	422	1	0.2
Donga "	5,113	12	0.02
Takum "	15,116	12	0.07
Awe "	3,071	1	0.03
Lafia "	15,420	4	0.02
Odegini-Beki "	18,111	1	0.005
Bagaji "	<u>24,841</u>	<u>7</u>	<u>0.02</u>
Total Disp/Hosp. Resurveys	<u>101,697</u>	<u>106</u>	<u>0.1</u>
Total All Resurveys	<u>209,971</u>	<u>158</u>	<u>0.07</u>

Voluntary Cases:

<u>Hospital/dispensary</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
Ajio(Shaengev South)disp.	52	16	11	79
Abinsi dispensary	9	9	5	23
Gboko "	34	22	22	78
Igbor "	18	1	5	24
Katsina-Ala "	7	6	5	18
Ibi "	5	4	6	15
Bantaji "	4	2	1	7
Donga "	8	10	10	28
Takum "	13	6	10	29
Awe "	4	-	-	4
Lafia "	11	7	3	21
Panda (Gitata)"	2	-	3	5
Keana "	1	-	-	1
Bagaji "	7	4	3	14
S.U.M. Mbakon "	1	3	3	7
Makurdi Hospital	34	6	10	50
Wukari "	2	8	5	15
D.R.C. Mkar"	11	15	5	31
S.U.M.Takum"	22	1	18	41
Oturkpo "	<u>10</u>	<u>1</u>	<u>1</u>	<u>12</u>
Total Volu. Cases	<u>255</u>	<u>121</u>	<u>126</u>	<u>502</u>

	<u>No. Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Mines Camps	4,788	-	-
M.O.W. Labour	-	-	-
Timber Extr.	<u>-</u>	<u>-</u>	<u>-</u>
Total	<u>4,788</u>	<u>-</u>	<u>-</u>



In Bedde Emirate a further 16 S.S. cases were diagnosed - mostly in the Gorgoram area where 30 cases were found in 1964. As mentioned in the Report for that year, the Veterinary Tsetse and Trypanosomiasis Unit is about to include this area in its tsetse eradication programme on the R. Jama'ari.

In Bornu Sheikdom a survey was conducted in Geidam district for the first time since 1945, (when 28 cases, an incidence of 0.7% were found). This year's survey was carried out in view of the recent finding of tsetse near Geidam in connection with the eradication projects along the Komadugu Yobe and K. Gana, but no S.S. cases were diagnosed. The area is about 85 miles in a direct line from the infected Gorgoram area - the nearest known source of trypanosomes.

In Biu Division, a further 79 S.S. cases were found by surveys during January-March and December 1965. During the period May-September S.S. Assistants were posted to Tashen Alade treatment centre on the main Biu - Garkida road about 13 miles from Garkida; Shani dispensary on the R. Hawal near the southern extremity of Biu Division; Biu dispensary, and to the Mission Hospitals at Garkida and Numan. A total of 30 additional cases were diagnosed by these staff - 16 at Tashen Alade and 9 at Shani.

This outbreak was fully dealt with in the 1964 Report. The total number of cases has now been brought up to 294, and it is hoped that the spraying operations carried out early in 1965 by the Veterinary Tsetse and Trypanosomiasis Unit will prevent further transmission. It is considered that the limits of the outbreak have been defined following the Ga'anda district survey mentioned in the Adamawa section.

Team resurveys

	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Bedde	6,523	16	0.24
Biu	111,591	242	0.21
Geidam	<u>18,602</u>	<u>-</u>	<u>-</u>
Total Team Resurveys	<u>133,716</u>	<u>258</u>	<u>0.19</u>

<u>Disps./Hosps. Resurveys</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Shani N.A. Disp.	1,979	6	0.3
Kawarjaffa T. Area	1,134	16	1.4
Biu N.A. Disp.	<u>2,808</u>	<u>3</u>	<u>0.1</u>
Total Disps/Hosps. Resurveys	<u>5,919</u>	<u>25</u>	<u>0.42</u>
Total All Resurveys	<u>139,635</u>	<u>283</u>	<u>0.2</u>

Voluntary Cases:

<u>Hospital/dispensary</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
-	-	-	-	-
	<u>No. Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>	
Mines Camps	-	-	-	
M.O.W. Labour	-	-	-	
Timber Extr.	-	-	-	

6.5 ILORIN PROVINCE.

Surveys were carried out in connection with the Kainji Dam construction, and one case probably infected elsewhere was found in the New Bussa area. A further 2,893 examinations were carried out on out-patients - mainly Dam labourers - at the Impregilo Hospital, New Bussa, without detection of any cases of S.S. Tsetse control measures have in any case been carried out in the immediate neighbourhood of operations at Kainji.

Team resurveys:

<u>District</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Borgu	248	-	-
Wawa	2,211	-	-
New Bussa	<u>2,194</u>	<u>1</u>	<u>0.04</u>
Total Team Resurveys	<u>4,653</u>	<u>1</u>	<u>0.002</u>

6.6 KABBA PROVINCE

No surveys were carried out this year.

6.7 KANO PROVINCE.

1965 proved a lean year for Trypanosoma gambiense in Kano Province. Only 26 cases were found amongst almost half a million persons surveyed, with a further 30 cases reporting voluntarily. 22 of the 39 cases in Kano Emirate



were found in the Kogin Kano focus described more fully in the 1964 Report; of the remainder, only one was classified as "new". Of the 17 cases found in Hadejia Emirate, only 6 were described as "new". However, since the whole Emirate should now be free from the vector, any further apparently fresh infections will require very full investigation, as constituting possibly the first indication of survival or re-introduction of tsetse into the Hadejia River Valley Project area.

Team Resurveys:

<u>District</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
K. Hausa	33,361	1	0.002
Dawakin Tofa	73,929	-	-
Kiru	5,878	1	0.01
Kura	8,568	11	0.12
Rano	2,567	6	0.23
Bici	5,428	-	-
Jahun	117,634	-	-
Gwarzo	52,844	-	-
Mal.Maduri	65,951	1	0.001
B. Kudu	<u>70,898</u>	<u>-</u>	<u>-</u>
Total Team resurveys	<u>437,058</u>	<u>20</u>	<u>0.004</u>

<u>Disps./Hosps. Resurveys</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Madachi Disp.	18,869	3	0.01
Taura Treatment Centre	5,591	3	0.5
Garun Bubba T/Centre	<u>2,706</u>	<u>-</u>	<u>-</u>
Total Disps./Hosps. Resurveys	<u>27,166</u>	<u>6</u>	<u>0.02</u>
Total All Resurveys	<u>464,224</u>	<u>26</u>	<u>0.005</u>

Voluntary Cases.

<u>Hospital/dispensary</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
Madachi Disp.	2	-	1	3
Taura Treatment Centre	-	1	6	7
Kano S.S. Clinic	-	-	1	1
Garun Bubba T/Centre	2	-	2	4
Hamdullahi Disp.	-	1	5	6
Hadejia Hospital	<u>2</u>	<u>-</u>	<u>1</u>	<u>3</u>
Total Volu. Cases.	<u>6</u>	<u>2</u>	<u>16</u>	<u>24</u>

The finding of an increased number of S.S. cases (compared to the 1963 survey), in the selected village areas of Kankara district first examined, led to survey of adjacent areas until the limits of the spread had been defined.

In the selected village areas of Kankara district surveyed in 1963, 17 cases were diagnosed - an increase in sleeping sickness cases found during the October 1965 survey led to an extension of investigation to cover about half of the district. (Very few additional cases were in fact found outside the "selected village areas").

Survey records of this district in the past are as follows:-

<u>Year</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
1936	31,240	238	0.7
1937	35,971	4,098	11.33
1950	41,933	231	0.5
1954	43,498	23	0.05
1962	49,580	32	0.06
1963	10,536	17	0.16
1965	36,735	42	0.002

It was interesting to note that the recent cases were found largely in the same villages in which they had recurred during the past three decades. The affected area is just outside the "KKZ" (Kano-Katsina-Zaria) clearing project, but was subjected to strategic tsetse clearings to control the epidemic of the 1930s, with further measures during the early 1950s, after which the area was for 8 years considered to be of low priority for further surveys. However, there are now once again many strategic points - water-points, road crossings, etc. - harbouring G.tachinoides, since the clearings have not been maintained. Whether further tsetse control measures will be necessary to control the outbreak, remains to be seen, when the results of the 1966 surveys are available. It had been the intention to resurvey the area in 1964, 12 months after the 1963 survey, but pressure of work elsewhere led to postponement of this; it seems likely from mathematical considerations that a resurvey in 1964 would have produced well under half the number of cases found in 1965 when transmission had been allowed an additional year unchecked, at "compound interest".



The decline from 32 cases in 1962 to 17 in 1963 also suggests that survey after a further 12-month interval in 1964 could have brought the outbreak almost under control, as repeated surveys have done in parts of Adamawa and some of the Bauchi foci.

The necessity for staff to follow sleeping sickness patients to their homes before plotting them on a map of the area was emphasised by the following incident at Kankara. Government sleeping sickness and medical field unit trainees were taken to the area to see the patients and to have "man-fly contact" demonstrated to them. For the latter purpose the map was studied and a hamlet was chosen from which several recent cases were recorded, which was adjacent to a perennial stream, and from which cases had previously been recorded also. On arriving at the hamlet and enquiring for the patients by name, it became apparent that all of them had established new compounds about 5 miles away - still owing allegiance to the head of the hamlet which we visited, and therefore giving this name when asked for details by the survey staff. Anyone trying to recommend control measures from the epidemiological point of view would have included this hamlet, whereas investigation of the stream and their water-source showed that it was actually farmed right to the bank, and in this way maintained tsetse free for some distance in the neighbourhood of the hamlet. (In practice of course tsetse control staff would eventually have discovered the error).

#### Team Resurvey

<u>District</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Kankara	<u>36,735</u>	<u>42</u>	<u>0.002</u>
Total Team Resurveys	<u>36,735</u>	<u>42</u>	<u>0.002</u>

<u>Disp/Hosp. Resurveys</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Bakori	<u>18,610</u>	<u>-</u>	<u>-</u>
Grand Total	<u>18,610</u>	<u>-</u>	<u>-</u>
Total All Resurveys	<u>55,345</u>	<u>42</u>	<u>0.07</u>

#### Voluntary Cases:

<u>Dispensary</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
Bakori	<u>7</u>	<u>3</u>	<u>-</u>	<u>10</u>
Total Volu. Cases	<u>7</u>	<u>3</u>	<u>-</u>	<u>10</u>

The difficulties of carrying out surveys in Bida Town were mentioned in 1963; the Niger - Ilorin S.S. headquarters was moved to Bida in 1964 to try and counter this. However, survey work in other parts of the Province during 1964 was slow and only about half of the scheduled dry-season programme was accomplished during the 1964-65 dry season, again partly due to lack of enthusiasm for assembling for surveys on the part of the local people.

For this reason there was some re-organisation of the teams and additional staff were transferred from Kano, so that three teams instead of two were able to operate as from mid-October 1965, and since then the Unit has been able to keep up to its schedule.

The figures for Katcha and Badeggi districts of Bida Emirate suggest a situation which can be controlled by repeated surveys and treatment, provided that we are actually able to carry out satisfactory surveys without encountering increased opposition to our efforts. In view of development in Mokwa district, through which the new Mokwa-Kainji Dam road passes, and which will soon be reached by road reconstruction gangs on the Bida-Mokwa road, the finding of only 6 cases, probably infected elsewhere, is reassuring.

In spite of the Team resurvey of Jima Doko district in 1964, the Sleeping Sickness Assistant based on the dispensary at Jima Doko diagnosed 26 cases out of 8,081 persons during dispensary resurvey between September and December, and treated a further 29 voluntary cases, a total of 55. In April 1964 the Team only found 27 S.S. cases - curious situation!

The position in the area affected by the Kainji Dam mainly Auna district of Kontagora Division and Wawa district of Borgu Division (Ilorin Province) - continues to receive careful attention. The 5 cases found during the year in Auna district encourage us to continue watchfulness without giving rise to concern; previous survey figures are given below:-

<u>Year</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
1936	1,245	703	56
1949	11,813	36	0.3
1960	14,282	8	0.05
1965	6,606	5	0.07



(Comparison of percentage figures are of course becoming somewhat irrelevant with the increasing tendency to survey only selected villages).

A survey of villages along the banks of the Niger from just below the Dam Site to Jebba, involving Bida, Borgu and Kontagora Emirates, failed to produce a single case, contrasting with the more densely populated riverine areas in Lafiagi and Pategi surveyed in 1963 and 1964 which yielded a total of 31 cases. (This in turn may be contrasted with the situation along the north bank of the Niger in Bida division, where the January 1966 survey failed to produce a single case!)

Paiko district in Minna Division produced 6,959 cases - an incidence of 36% - in 1936; the single case of the 1965 survey is reassuring.

#### Team Resurveys

<u>District.</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Badeggi	11,824	15	0.12
Katcha	15,909	32	0.2
Lapai	22,085	2	0.009
Mokwa	19,356	6	0.03
Agaie	3,718	2	0.05
Paiko	8,863	1	0.1
Wushishi	5,426	-	-
Agaie Kintifi	1,606	2	0.12
Auna	6,606	5	0.07
Ibbi	<u>153</u>	<u>-</u>	<u>-</u>
Total Team Resurveys	<u>95,546</u>	<u>65</u>	<u>0.06</u>

<u>Disp./Hosp. Resurveys</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Kafin Karo N.A.Disp.	1,669	3	0.17
Kuta N.A. "	1,960	4	0.2
Abuja " "	13,658	6	0.04
Jima Doko T/Centre	<u>11,098</u>	<u>21</u>	<u>1.9</u>
Total Disp/Hosp. Resurveys	<u>18,385</u>	<u>34</u>	<u>0.18</u>
 Total All Resurveys	 <u>113,931</u>	 <u>99</u>	 <u>0.08</u>

Voluntary Cases:

<u>Hospital/dispensary</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
Kafin Karo N.A. Disp.	8	-	4	12
Kuta N.A. "	7	-	3	10
Abuja " "	6	7	-	13
Jima Doko N.A. "	9	15	5	29
Minna Hospital	1	3	2	6
Bida "	<u>7</u>	<u>13</u>	<u>10</u>	<u>30</u>
Total Volu. cases	<u>38</u>	<u>38</u>	<u>24</u>	<u>100</u>

	<u>No.Examined</u>	<u>S.S.Cases</u>	<u>% S.S.</u>
Mines Camps	-	-	-
M.O.W. Labour	9,252	1	0.01
Timber Extr.	-	-	-
Total	<u>9,252</u>	<u>1</u>	<u>0.01</u>

6.10

PLATEAU PROVINCE.

Comparative figures for the past 6 years are given below:-

	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>
Voluntary Cases	331	457	198	166	110	142
Survey cases	<u>98</u>	<u>90</u>	<u>82</u>	<u>57</u>	<u>131</u>	<u>256</u>
	<u>429</u>	<u>547</u>	<u>280</u>	<u>223</u>	<u>241</u>	<u>398</u>

It is satisfactory that a higher proportion of cases is now being found in the early stages of the disease during survey, instead of being left to report voluntarily after development of symptoms. One is nevertheless inclined to wonder whether there may not have been some over-enthusiastic diagnosis of voluntary cases during the early 1960s, or else some rather deficient survey work, to account for the considerable discrepancies between voluntary and survey cases then. At the present time the standard of Team Survey work in Plateau Province is definitely very good.

The surveys of two successive dry seasons by the same Team in Bwal and Mirriam Kwang show increasing numbers of S.S. cases:

	<u>B W A L</u>		<u>M I R R I A M K W A N G</u>	
Date of Survey	Jan.1964	March 1965	Dec. 1963	Jan. 1965
S.S.cases	20	41	19	32



If this trend is maintained, tsetse control measures will again have to be taken in this area, which lies on the flat plain within a few miles of the steep southern Plateau escarpment. Further away from the escarpment the S.S. situation has not generally been as serious as it once was around its base, and the surveys in Kwande and Durok this year and Namu last year do not suggest any extension into these areas, although the tendency of the people of Mirriam Kwang to seek farmland further south - especially in Namu, adjoining Lafia Emirate, allows plenty of scope for infection of tsetse in this tsetse-infested and at present under-populated district which had an incidence of 4% of S.S. in the early 1930s. Eastward extension into Doka and Kanam districts of Lowland Division, for which 590 cases, (an incidence of 11.7%) were recorded in 1932, will need to be watched for. (The village area of Koffyer Kwa appeared separately for the first time in a survey report in 1965, with 28 cases; Kwa itself is only a mile from Kwang, but it has been difficult to ascertain how often it has in fact been surveyed before; it was certainly included in the 1934 survey and again in 1958, but the number of cases in Kwa as opposed to Kwang is difficult to sort out).

The position in Wamba district of Akwanga Division gives rise to concern, especially as it is generally regarded as unsuitable for tsetse control; 90 cases were found at resurvey during the year. (The remaining areas of Wamba district were surveyed early in 1966 and produced only a further 12 cases). A further 38 voluntary cases were registered at Wamba, Andaha and Gwongwon dispensaries. Two surveys of Arum sub-district were conducted in May, 1,274 persons were examined and 24 cases found (23 of them gland-positive), and in October a different team covered a larger area, examining 2,317 persons and finding a further 21 cases (18 of them gland or blood-film positive for trypanosomes indicating recent development. 15 of these October cases were located in the same hamlets as the 23 May cases, when hamlet incidences in the 6 hamlets examined varied from 0.6% to 3.6%. It seems that 6-monthly surveys will be necessary here, and it will be interesting to see whether increasing the frequency of examination can in fact control the situation; the numbers involved at present are fairly small, but an extension of infection would render this method difficult. Most of the cases were found in hamlets lying close to the main Jos-Wamba road, which already has other danger-spots in Jema'a division and at Assob (Hwawan Kibo) half-way up the escarpment but in Jos Division, where a further 37 cases

were diagnosed in December 1965. (Tsetse control measures have been applied at Assob early in 1966).

Developments in Wamba district of Akwanga division need to be considered together with those in Jema'a division of Zaria Province, which lies immediately to the north and west. Fortunately the "Plateau" Sleeping Sickness Unit still covers Jema'a division, which was formerly a part of Plateau Province.

#### Team Resurveys

<u>District</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Mirriam Kwang	3,894	32	0.82
Koffyer Kwa	6,953	28	0.4
Bwal	2,411	41	1.7
Kwande	10,141	7	0.07
Durok	8,411	7	0.08
Kanam	8,375	-	-
Wamba	1,274	24	1.8
Arum	2,317	21	0.9
Bachit	1,329	37	2.7
Kwarra (Wamba)	3,470	35	1
Gitta "	3,469	5	0.1
Manjar "	1,204	4	0.3
Nakere "	<u>1,689</u>	<u>1</u>	<u>0.06</u>
Total Team Resurveys	<u>54,937</u>	<u>242</u>	<u>0.4</u>

<u>Disp/Hosp.Resurveys</u>	<u>Number Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Zagun N.A. Disp.	5,195	5	0.09
Nassarawa Eggon Disp.	1,015	-	-
Andaha "	8,192	-	-
Doka N.A. "	5,750	3	0.05
Gwongwon "	<u>931</u>	<u>6</u>	<u>0.06</u>
Total Disp/Hosp.Resurveys	<u>21,083</u>	<u>14</u>	<u>0.06</u>
Total All Resurveys	<u>76,020</u>	<u>256</u>	<u>0.3</u>

#### Voluntary Cases:

<u>Dispensary/Hospital</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
Zagun N.A. Disp..	9	9	17	35
Wamba " "	10	6	2	18
Nassarawa Eggon Disp.	4	-	5	9
Andaha N.A. Disp.	5	8	3	16
Doka " "	30	6	6	42
Gwon-Gwon "	4	-	-	4



<u>Dispensary/Hospital</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
S.U.M. Hosp. (Vom)	7	1	-	8
S.D.A. Jengre	1	-	1	2
Shendam Hospital	<u>7</u>	<u>3</u>	<u>4</u>	<u>14</u>
Total Volu. Cases	<u>77</u>	<u>33</u>	<u>38</u>	<u>148</u>

	<u>No. Examined</u>	<u>S.S. Cases</u>	<u>% S.S.</u>
Mines Camps	5,399	1	0.01
M.O.W. Road Labour	335	-	-
Timber Extr.	<u>-</u>	<u>-</u>	<u>-</u>
Total	<u>5,734</u>	<u>1</u>	<u>0.01</u>

#### 6.11 SARDAUNA PROVINCE.

No surveys were carried out this year.

#### 6.12 ZARIA PROVINCE

The remainder of Kagarko district, commenced last year, was surveyed without producing a single case of sleeping sickness.

An extensive programme of surveys was commenced during 1965 to cover most of (a) Lere district other than the main Pitti focus, (which was examined during November 1965 - January 1966); (b) Kauru district, which includes Gyeshere dispensary where 77 cases were treated in 1964; (c) part of Zongon Katab district just south of the main focus; (d) adjacent areas of Plateau Province which have for some years been regarded as fairly "safe", although severely involved two or three decades ago. (These latter were not actually surveyed until 1966).

The Team examining the remainder of Lere district diagnosed 29 "new" and 5 relapsed cases. The highest concentrations were 13 cases out of 958 persons examined (1.35%) at Jama'a Iya along the River Kuri midway between Garun Kurama and Gyeshere (see map on page 127 of 1963 Report); and 5 cases out of 1,929 persons examined (0.26%), at Kahugu, about 15 miles north of Garun Kurama and 8 miles south-west of Lere Town itself - which only produced one case. Although 21 voluntary patients were registered at Lere dispensary during the year, which could be added to the district total, only 6 of these were recorded as "new"; and the Warsa Treatment Centre in the heart of the main focus only registered one "new" patient (9 in 1964), with 18 relapses and 3 clinical cases.

The Team survey of part of Kauru district failed to elicit a single case, although dispensary resurveys by the sleeping sickness assistant at Gyeshere dispensary (the district headquarters), during the first 7 months of the year produced 17 cases (12 of them "new"), and this assistant treated a further 24 voluntary cases (14 "New") at Gyeshere.

The year's totals for the Pitti focus and environs are thus:

	New S.S. Cases	Total cases
1964	109	187
1965	67	131

Although surveys during the two years are not strictly comparable, it appears that great reduction in transmission in the main focus, mentioned in the 1964 Report, has been maintained, and that infection in the surrounding area is also coming under control; the apparent escalation of infection around Gyeshere and Lere dispensaries in 1964, when assistants based there diagnosed 130 cases between them, has not been confirmed;

S.S. cases diagnosed by assistants based at  
Lere and Gyeshere.

	New Cases	Total Cases
1963	47	84
1964	88	130
1965	32	62

The problem of treatment for the large number of relapses remains with us.

In Jema'a division, the infection rate in Ayu district, (adjacent to Wamba district of Akwanga mentioned in the Plateau section), has not been controlled in spite of repeated coverage by a very active sleeping sickness assistant attached to Sabon Gida dispensary. This district had a peak incidence of 7.8% in 1943. By 1960 only 7 cases out of 5,713 examined (0.12%) could be detected by a team survey, but the deceptiveness of this figure is shown by the fact that 30 cases were found by dispensary resurvey and 24 cases reported voluntarily to Sabon Gida dispensary during that year. The position during the last 3 years is shown below:

Year	Month	Type of survey	No. of Gl. +ve persons examined	Total S.S.	Volu. cases (whole year)
1963	Mar.-May	Disp.	16,654	17	12
	Nov.-Dec.	"	9,701	19	
1964	Jan.-April	"	13,703	7	10
	Nov.-Dec.	"	9,560	32	
1965	Jan.-May	"	15,115	20	31
	November	Team	6,492	31	



Yearly totals, all cases:-

1963, 52  
1964, 53  
1965, 92.

As in Wamba district to the south and east, many of the infected hamlets lie close to the main Jos-Wamba road.

The epidemiology and probable sites of transmission have not been studied in detail recently in Jema'a tsetse flies are presumed to rove freely and to be widespread in this high-rainfall area, rendering vector control difficult or impracticable as in Wamba district. The question of introducing pentamidine prophylaxis will have to be very seriously considered if the situation cannot be resolved in any other way, but the dangers of embarking upon such a programme with a mobile and uncontrolled population are considerable. This Ministry's Advisers have always been very anxious to retain pentamidine as an effective prophylactic weapon for controlled communities, such as the tin mines workers, and other labour exposed to special risks, and its use in any other way - especially right in the mining area itself involves the serious risk of evolving or selecting pentamidine-resistant strains of trypanosome, an eventuality which would be exceedingly serious for the mining industry.

<u>Team Resurveys</u>	<u>No Examined</u>	<u>S.S.Cases</u>	<u>o/o S.S.</u>
Kagorko	20,066	-	-
Pitti-Lere	2,398	10	0.41
Geshere-Kanru	5,611	-	-
Zangon-Katab	3,496	3	0.08
Lere	62,693	34	0.05
Ayu (Jema'a)	6,492	37	0.57
Ninzam	<u>7,897</u>	<u>12</u>	<u>0.15</u>
Total Team Resurveys:	108,653	96	0.08

<u>Disps/Hosps.Resurveys</u>	<u>No.Examined</u>	<u>S.S.Cases</u>	<u>o/o.S.S.</u>
Jema'a N.A.Dispensary	20,012	30	0.01
Fadam Wate "	6,334	13	0.2
Sabon Gida "	15,115	24	0.15
Geshere "	15,913	17	0.1
Lere "	2,876	-	-

<u>Disps/Hosps.Resurveys:</u>	<u>No.Examined</u>	<u>S.S.Cases</u>	<u>% S.S.</u>
Kafanchan N.A.Disps.	19,164	5	0.02
	<hr/>	<hr/>	<hr/>
Total Disps/Hosps- Resurvey:	79,414	89	0.1
<hr/>			
Total all Resurveys	188,067	185	0.09
<hr/>			

<u>Voluntary Cases</u>	<u>New</u>	<u>Clinical</u>	<u>Relapse</u>	<u>Total</u>
Jema'a N.A.Dispensary	7	1	5	13
Fadan Wate "	6	-	7	13
Sabon Gida "	24	6	1	31
Pitti T.Centre	1	3	18	22
Geshere N.A.Disp.	14	7	3	24
Lere " "	6	9	6	21
Zaria City "	3	-	1	4
Kafanchan Hospital	<u>4</u>	<u>3</u>	<u>13</u>	<u>20</u>
Total Voluntary Cases:	65	29	54	148

	<u>No Examined</u>	<u>S.S.Cases</u>	<u>%S.S.</u>
Mines Camps	6,478	3	0.04
M.O.W.Labour	538	1	0.18
Timber Extr.	278	-	-
	<hr/>	<hr/>	<hr/>
Total	7,294	4	0.05



SLEEPING SICKNESS SERVICE ANNUAL REPORT.

1ST JANUARY - 31ST DECEMBER, 1965.

PROVINCIAL DISTRIBUTION OF ALL CASES OF SLEEPING SICKNESS.

PROVINCE	TEAM RESURVEYS	DISPENSARY RESURVEYS	MINES, PWD TIMBER EXTR. RAILWAY EXT. SURVEYS	N. A. DISPEN- SARIES	MINES DISPS.	GOVT. HOS- PITALS	MISSION HOS- PITALS	TOTAL S.S. CASES	% OF S.S CASES IN THE POPU- LATION SURVEYED
ADAMAWA	24	-	-	9	-	-	9	42	0.13
BAUCHI	61	16	2	24	-	48	-	151	0.2
BENUE	52	106	-	342	-	77	83	660	0.3
BORNU	258	25	-	-	-	-	-	283	0.2
ILORIN	1	-	-	-	-	-	-	1	0.02
KABBA	-	-	-	-	-	-	-	-	-
KADUNA C.T.	-	-	-	8	-	-	-	8	0.08
KANO	20	6	-	21	-	3	-	50	0.01
KATSINA	42	-	-	10	-	-	-	52	0.09
NIGER	65	34	1	64	-	36	-	200	0.01
PLATEAU	242	14	1	124	-	14	10	405	0.53
SARDAUNA	-	-	-	-	-	-	-	-	-
SOKOTO	-	-	-	-	-	-	-	-	-
ZARIA	96	89	4	128	-	20	-	337	0.3
T O T A L	861	290	8	730	-	198	102	2,189	0.14

SLEEPING SICKNESS

TEAMS, DISPENSARIES AND HOSPITALS RESERVEYS.

P R O V I N C E	TEAM RESURVES					DISPENSARY AND HOSPITAL RESURVEYS				
	NO. EXAMINED	NEW	CLINICAL	RELAPSE	TOTAL	NO. EXAMINED	NEW	CLINICAL	RELAPSE	TOTAL
ADAMAWA	23,012	11	3	10	24	-	-	-	-	-
BAUCHI	115,060	49	2	10	61	29,677	10	6	-	16
BENUE	108,274	47	2	3	52	101,697	81	11	14	106
BORNU	133,716	251	7	-	258	5,919	21	1	3	25
ILORIN	4,653	-	1	-	1	-	-	-	-	-
KABBA	-	-	-	-	-	-	-	-	-	-
KADUNA C.T.	-	-	-	-	-	-	-	-	-	-
KANO	437,058	13	5	2	20	27,166	3	1	2	6
KATSINA	36,735	37	1	4	42	18,610	-	-	-	-
NIGER	95,546	57	7	1	65	18,385	26	6	2	34
PLATEAU	54,937	210	16	16	242	21,083	12	1	1	14
SARDAUNA	-	-	-	-	-	-	-	-	-	-
SOKOTO	-	-	-	-	-	-	-	-	-	-
ZARIA	108,653	77	3	16	96	79,414	65	11	13	89
T O T A L	1,117,644	752	47	62	861	301,951	218	37	35	290

TOTAL CASES = 1,151



ANNUAL REPORT: SLEEPING SICKNESS SERVICE  
1ST JANUARY - 31ST DECEMBER  
1965.

## VOLUNTARY CASES TREATED IN DISPENSARIES.

P R O V I N C E	S.S. DISPENSARIES			N. A. DISPENSARIES			TOTAL OF ALL S.S. CASES			TOTAL 1965	TOTAL FOR 1964
	NEW	CLINICAL	RELAPSE	NEW	CLINICAL	RELAPSE	NEW	CLINICAL	RELAPSE		
ADAMAWA	2	5	2	-	-	-	2	5	2	9	9
BAUCHI	4	1	-	5	10	4	9	11	4	24	35
BENUE	-	-	-	179	86	77	179	86	77	342	352
BORNU	-	-	-	-	-	-	-	-	-	-	-
ILORIN	-	-	-	-	-	-	-	-	-	-	-
KABBA	-	-	-	-	-	-	-	-	-	-	-
KADUNA C.T.	3	1	4	-	-	-	3	1	4	8	2
KANO	2	1	9	2	1	6	4	2	15	21	19
KATSINA	-	-	-	7	3	-	7	3	-	10	7
NIGER	9	15	5	21	7	7	30	22	12	64	52
PLATEAU	-	-	-	62	29	33	62	29	33	124	96
SARDAUNA	-	-	-	-	-	-	-	-	-	-	-
SOKOTO	-	-	-	-	-	-	-	-	-	-	-
ZARIA	1	3	18	60	24	22	61	27	40	128	140
	21	26	38	336	160	149	357	186	187	730	712

**GRAND TOTAL = 730**

SLEEPING SICKNESS  
VOLUNTARY CASES TREATED IN HOSPITALS

P R O V I N C E	GOVERNMENT HOSPITALS		MISSION HOSPITALS		TOTAL FOR ALL HOSPITALS		TOTAL FOR 1964
	NEW	CLINICAL	RELAPSE	NEW	CLINICAL	RELAPSE	
ADAMAWA	-	-	-	-	9	-	3
BAUCHI	19	9	20	-	9	20	42
BENUE	48	14	15	37	18	28	125
BORNU	-	-	-	-	-	-	-
ILORIN	-	-	-	-	-	-	-
KABBA	-	-	-	-	-	-	-
KADUNA C.T.	-	-	-	-	-	-	-
KANO	2	-	1	-	-	1	11
KATSINA	-	-	-	-	-	-	-
NIGER	8	16	12	-	-	12	48
PLATEAU	7	3	4	8	1	5	14
SARDAUNA	-	-	-	-	-	-	-
SOKOTO	-	-	-	-	-	-	-
ZARIA	4	3	13	-	3	13	24
T O T A L	88	45	65	45	28	29	300
				133	73	94	267



SLEEPING SICKNESS.

EXAMINATION AND PENTAMIDINIZATION OF ALL MINES, RAILWAY EXTENSION  
M.O.W. ROADS AND TIMBER EXTRACTION LABOURERS AND FAMILIES.

PROVINCE	MINES LABOUR & FAMILIES			RAILWAY EXTENSION LABOUR & FAMILIES			M.O.W. & ROAL LABOUR				TIMBER EXTRACTION (FOREST) LABOUR			TOTAL LABOUR & FAMILIES EXAM.	TOTAL WITH S.S.	TOTAL PENT. GIVEN
	NO. EXAMINED	NO. S.S.	NO. PENT. GIVEN	NO. EXAMINED	NO. S.S.	NO. OF PENT.	NO. EXAMINED	NO. S.S.	NO. PENT. GIVEN	NO. EXAMINED	NO. S.S.	NO. PENT. GIVEN	NO. EXAMINED			
ADAMAWA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BAUCHI	20,243	2	121	-	-	-	206	-	-	-	-	-	-	20,449	2	121
BENUE	4,788	-	-	-	-	-	-	-	-	-	-	-	-	4,788	-	-
BORNU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ILORIN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KABBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KADUNA C.T.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KANO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KATSINA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NIGER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PLATEAU	5,399	1	3,403	-	-	-	9,252	1	-	-	-	-	-	9,252	1	-
SARDAUNA	-	-	-	-	-	-	335	-	-	-	-	-	-	5,734	1	3,403
SOKOTO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZARIA	6,478	3	4,030	-	-	-	538	1	-	-	-	-	-	7,294	4	4,030
T O T A L	36,908	6	7,554	-	-	-	10,331	2	-	-	-	-	-	47,517	8	7,554

NO. OF PENTAMIDINE INJECTIONS GIVEN: SABON GIDA RESETTLEMENT = 1,678

GRAND TOTAL OF PROPHYLACTIC PENTAMIDINE INJECTIONS = 9,232

SLEEPING SICKNESS SERVICE, ANNUAL REPORT  
1ST JANUARY - 31ST DECEMBER, 1965.

SUMMARY OF S.S. CASES FOUND AT RESURVEYS.

TYPE OF RESURVEY	NO. EXAMINED	NEW	CLI- NICAL	RELA- PSE	TOTAL S.S.	% S.S.
TEAM	1,117,644	752	47	62	861	0.07
DISPENSARY	301,951	218	37	35	290	0.01
MINES, P.W.D., TIMBER EXTRACTION	47,517	8	-	-	8	0.01
RAILWAY EXTENSION	-	-	-	-	-	-
T O T A L	1,467,112	978	84	97	1,159	0.07

SUMMARY OF S.S. CASES TREATED AT HOSPITALS  
AND DISPENSARIES.

CASES ATTENDED AT	NEW	CLINICAL	RELAPSE	TOTAL
HOSPITALS	133	73	94	300
DISPENSARIES	357	186	187	730
T O T A L	490	259	281	1,030



(By Alhaji Abubakar Ibrahim, Acting Principal Control Officer, Sleeping Sickness Service.)

#### 7.1 Staff Position

The last expatriate Control Officer, Mr. J.O. Steiner, Principal Control Officer, retired from the Service in June 1965 after 17 years service in Control Section of the Ministry of Health, and was relieved by Alhaji Abubakar Ibrahim, Senior Control Officer, who took over his duties as Acting Principal Control Officer.

Early in the year 1965 the first batch of 5 Assistant Control Officers in-training with West African School Certificate were promoted to Control Officers. Two out of these Officers, who were selected and sent to the U.S.A. for further training as Entomologists in 1963, continued their training during the year in review.

The second set of five candidates with W.A.S.C. selected as Assistant Control Officers in training in 1963, completed their training period and were confirmed as Assistant Control Officers.

#### 7.2 Control Work.

The Tsetse Control Section of the Sleeping Sickness Service, is at present made up of:

- 1 Entomologist to organise Tsetse Control work;
- 1 Principal Control Officer to supervise Control Staff;
- 18 Senior Control Officers, Control Officers and Assistant Control Officers to operate Tsetse Control programmes in the Provinces;
- 79 Tsetse Control Inspectors, and Control Assistants Grades I, II & III for field operations under the supervision of Control Officers.

The Tsetse Control Section maintains frequent consultations with the Nigerian Institute for Trypanosomiasis Research, and it also works in close collaboration with the Veterinary Tsetse Control Unit of the Ministry of Animal and Forest Resources.

Maintenance of clearings was carried out in all districts in Zaria Province by communal labour under the supervision of Zaria N.A. Tsetse Overseers.

K.K.Z. Annual reslashing of Kano, Katsina and Zaria cleared barriers was effected by paid labourers.

In the early part of the year re-spraying was carried out on the banks of the River Kogin-Kano by the Control Staff of the Zaria Unit, and fly re-checking was conducted by Kano Control Unit.

Routine fly checks in the controlled areas of K.K.Z. cleared barriers were carried out in the early part of the dry season. The checks revealed a re-invasion by G.tachinoides at one point of the River Maryaji, a tributary of the River Jere System. The tributary was re-sprayed with 4% Dieldrin emulsion to prevent re-invasion.

Throughout the rainy season of 1965 the Control Staff of the Zaria Unit was busy in the Southern Lere Project area on fly and vegetation surveys.

During the year it became apparent that re-infestation by both G.tachinoides and G.palpalis was occurring in many River areas which had been cleared and sprayed in the Tiv Division, particularly in the vicinity of Gboko Town. It was also apparent, from the number of Tsetse flies found in some compounds, that the Tsetse eradication programme had not been very successful in that area. Fly investigation of the previously cleared and sprayed localities was continued by the Control Unit in Gboko throughout the year. The riverain areas concerned in this Territory include the following:-

- (a) River Mu banks and adjacent places including the Ikpa Barrier;
- (b) Banks of the Rivers Kanshsha and Anbighir and nearby compounds.



## 7.5 Niger Province.

During the year 1965 the following control operations were carried out in Bida Town:-

- (a) Reslashing of River Lanza to junction of River Chike.
- (b) Reslashing of River Chike cleared areas.
- (c) Reslashing of River Musa from its junction with River Lanza to Zunguru motor road crossing.
- (d) Ruthless Barrier clearing of River Musa at Tsantsage bridge on the Bida-Badeggi motor road.
- (e) Selective clearing of indigenous trees, leaving economic trees for spraying.
- (f) Stumping of cleared areas of River Lanza, River Musa and River Chike.
- (g) Fly checks continued as usual but no Tsetse flies were found in the controlled areas even after repeated re-checks.

## 7.6 Kaduna Capital Territory.

The Ministry of Health now has responsibility for annual re-slashing of the river banks in Kaduna.

## 7.7 Bauchi Province.

Early in January 1965 the infested banks of the streams in Zungur-Bula District were treated with 5% suspension of 75% D.D.T. (wetttable powder) and all insecticidal barriers in the same area were re-sprayed, to keep the rivers free from Tsetse flies. The total mileage treated with insecticide was 285.

Ningi Chiefdom: Fly checks were continued in the "Ningi Scheme" sprayed areas throughout the rainy season. No fly was seen.

Gombe Kwadom: Fly checks of sprayed and cleared rivers of this area were maintained. Only G.tachinoides was caught.

Zaranda Control Area: It was found by fly-check that G.tachinoides had re-invaded the River Jarawa Control territory in the Ungwa Kanawa Village area. This area is included in the 1966 control programme.

Extension spray Ningi Chiefdom: In March 1965 there was an extension of No.3 Dieldrin sprayed barrier which includes some tributaries of River Diriya System near Ungwa Katsinawa. The reason for the extension of the barriers is to prevent re-invasion of the large sprayed area of the Ningi scheme. During the year fly checks revealed absence of flies in the sprayed area.

Re-slashing: During the year annual reslashing in all the cleared rivers in Bauchi Province was carried out and has been completed satisfactorily by paid labourers.

In the year under review spraying of the infested streams in Hawankibo in Plateau Province where a large number of Sleeping Sickness cases were discovered in 1960 and 1964, was conducted by the Bauchi Control Unit with 4% of Dieldrin prepared from 20%(Emulsion conc.). A total of 180 river miles was covered by insecticides. After completion of the spraying fly-checks were carried out and no fly was seen during the re-checks.

#### 7.8 Kano Province.

Hadejia River Valley Project: During the year 1964-65, the spraying of Hadejia Valley to eradicate Tsetse flies, particularly G.tachinoides, was completed. Since the beginning of the Project in 1963, 750 square miles of the area was sprayed with 5% suspension of D.D.T. prepared from 75% D.D.T.(wp).

Fly checks and advanced fly surveys: During the period October 1964 to May 1965, two teams of Kano Control Unit were engaged in fly **checks** and advanced fly surveys on the Hadejia River Valley Project. The first team started checks from sprayed blocks "A" to the end of "D". This also included Hago High ground experimental area. The second team which was supervised by Mr. C. Fredrickson, USAID Entomologist, carried out advanced surveys between the confluence of River Katagum and River Hadejia to Gaidam in Bornu Province. No fly was seen in both areas covered by these two teams.

Kiru District: Fly checks were carried out in Kogin-Kano area which was sprayed in 1963. No flies were found.

Throughout 1965 annual reslashing and inspection of protective cleared rivers in Kano Province were carried out by Kano Native Authority Tsetse Control Staff. The area was found to be Tsetse free.



8. The Technique of Tsetse Control used by the Control Units of the Sleeping Sickness Service, Ministry of Health Nth. Nigeria.

\* By D.A. Turner, U.K. Technical Assistance Entomologist seconded to the Ministry of Health, Kaduna.

A Tsetse Control Unit consists of the following salaried staff:-

- 1 Control Officer (C.O).
- 1-2 Assistant Control Officers (A.C.O.)
- 1-2 Tsetse Control Inspectors (insp.)
- Tsetse Control Assistants Grades I, II, and III (T.C.A's) Subordinate Staff ("Sub-staff").

On the basis of the Sleeping Sickness situation in the Province the Control Officer, in conjunction with the Entomologist's recommendations, submits to Headquarters his proposals for dry-season control work along with estimates of insecticide quantities and labour costs. The Principal Control Officer (P.C.O.) at Headquarters indents for and dispatches funds, equipment, insecticide and arranges such transport as may be required.

When an outbreak of Sleeping Sickness is reported its extent is determined by Epidemiological Survey and the Tsetse Control Staff survey the rivers and streams of the area for fly/vegetation.

Depending on the size of the outbreak and commitments elsewhere a single T.C.A. and one "sub-staff" or a whole survey team consisting of an A.C.O. or Inspector in-charge and (usually) three T.C.A's and three sub-staff will survey the area.

The method of survey is as follows:-

Each and every tributary of a river system is investigated. The team splits up into pairs, one T.C.A. and one sub-staff per tributary. The tributary is walked down and its length measured either by pacing or by tally-counter. This is done by the sub-staff usually. The T.C.A. sketches the course of the tributary and records the thickness of the riverine vegetation according to whether it is light, medium or heavy. Stops are made periodically in likely-looking tsetse spots.

\* Mr. Turner has now left Nigeria for studies at the London School of Tropical Medicine.

10-15 minutes are spent catching tsetse flies using themselves as bait. Little actual searching for flies is done on this initial survey. The T.C.A. records species, number and sex of the fly caught, and marks on his sketch map the approximate location. Other observations include whereabouts of villages, extent of riverside cultivation, positions of footpaths and cattle tracks. Frequency of watering and washing sites and their likelihood of offering man/fly contact situations. Other observations include whereabouts of any game seen and anything unusual about the area. One large sketch map is then made incorporating all the details of the survey.

Knowing the extent of the outbreak and also the probable foci of man/fly contact, knowing also the length of the river systems and the relative thickness of the riverine vegetation which constitutes the tsetse habitat the C.O. then draws up a control scheme. This will include such details as barriers, whether cleared or spray barriers, road-building, path-cutting, etc.

The type of insecticide used and the strength to be applied depends upon the vegetation Zone the outbreak occurs in.

{ Northern Guinea Savannah Zone:-	D.D.T. 75% w.p 5% susp.
{ Sudan Savannah Zone	Dieldrin 20% E.c.2 and 4% soln.
	5% barrier spraying.
Southern G.S.Z.	D.D.T. 25% E.c. 5% soln.
	Dieldrin 20% E.c. 4% soln.
	5% barrier spraying.

When determining quantities of insecticide the C.O. bases his calculations mainly in the light of his past experience. No refined calculations of dosage, etc. are involved. The C.O. knows the total length of the riverine vegetation and its general thickness. For average thickness riverine vegetation, past experience may put spraying at a rate of 5 gallons of Dieldrin 20% (4% soln.) per linear mile, or 30 lbs. of D.D.T. 75% w.p. (5% susp.) per linear mile. Extremely thick riverine vegetation may take 12 gallons (or 60 lbs.) per linear mile, whilst light vegetation may only take 3 gallons (or 10 lbs.) per linear mile. Estimations of insecticide quantities are usually arrived at by this system of rough and ready averages devised by the C.O.'s past experience.



It will be appreciated that it is impossible to make a strict comparison of the consumption of insecticide between two schemes, particularly in two different vegetation zones. This is influenced by the nature of the riverine vegetation and the strength of the insecticide used. The experience of the spray operators is also likely to be a variable factor.

The technique of spraying used by the S.S.S. Control Units is (except in special circumstances) blanket spraying. This involves spraying all vegetation to a height of 6 feet usually, and includes all shrubby undergrowth and thicket as well as the trunks and lower branches of trees.

When an area is to be sprayed all the control staff of the Unit are involved, work elsewhere such as surveying or spot-checking stops.

Daily paid labour is recruited for spraying, path-cutting, road and camp building, etc.

Depending on the size of the control area the Unit is divided up into teams, usually two or three, never more than three, and each team works along a different section of river.

The team or gang is made up as follows:-

Insp. or A.C.O. - gang leader.

1 T.C.A. - in charge mixing operations.

(T.C.A's  
(Substaff. - directing spraying operations.

Labourers as

Sprayers

Mixers

Water carriers

Insecticide carriers

Path-cutters

Others used for road and camp building.

The basic number of sprayers per gang is 12. To each sprayer there is one T.C.A. or Substaff who instructs the sprayer where and what to spray. (Although labour is usually hired 'on the spot' sprayers who have acquired some experience are repeatedly hired even in different areas).

There is 1 water-carrier for 2 sprayers. Water is generally easily available.

There are 2 insecticide carriers per sprayer.

There are 3 mixers per gang under the supervision of 1 T.C.A. who ensures that the correct proportions of insecticide and water are mixed.

If the vegetation is too thick for easy access by the sprayer, path-cutters cut traces through the thicket. There are usually 12 cutters per gang.

1 T.C.A. is continually engaged in repairing faulty equipment.

Three spraying teams exhaust the number of permanent control staff to supervise operations. Two spray teams is the usual number.

It is impossible to give a figure for the average number of linear miles sprayed per working day as this varies greatly with the thickness of the riverine vegetation.

The extent of the epidemic focus is usually such that control operations rarely take more than 2 months.

Transport: Usually two or three vehicles per control scheme. One, usually a 3-ton truck, is used for carrying insecticide and equipment and the other, usually a Landrover or a kit-car for staff.

After the spraying operations a general survey is done of the whole area to assess the fly population after spraying and to check for the general effect of the spray, and to look for possible unsprayed pockets of vegetation still hiding fly. Then standing-catch points are located throughout the control area. These are visited usually twice monthly by one T.C.A. and 1 substaff. One whole working day is spent at each catching point.

The following is an account of three control schemes carried out in three different vegetation Zones of Northern Nigeria by the S.S.S.

Kogin Kano            N.G.S.Z.            1963-4            Tsetse: G.tachinoides.

3 spray teams under the leadership of one A.C.O. and two Inspectors.

Date of spraying:- 11th November, 1963 - 25th January, 1964, approx. 75 days.

Insecticide:- D.D.T. 75% w.p. as a 5% susp.

Amount ordered:- 7 tons 320 lbs.

Amount used:- 6 tons 320 lbs. - over-estimate of approx. 12%

Machines used:- Misto's and Motoblos.



Linear miles of river sprayed:- 351 miles.

Rate of insecticide per mile:- 40 lbs.

Vegetation:- Generally heavy, much of it very thick minmosa.

Labour:- Rate 4/- per day. Camp-building, road making and spraying costs £1,400 at £4 per mile.

No information of more detailed breakdown of costs.

Transport:- No information on transport or milages.

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Ningi S.S.Z. 1964 Tsetse: G.tachinoides and morsitans

2 spray teams under the leadership of two A.C.O's.

Date of spraying:- 10th January - 10th April, 1964 - 3 months.

Insecticide:- D.D.T. 75% w.p. as a 5% susp.

Diieldrin 20% E.c. as a 4% soln. used for barrier spraying to be resprayed annually.

Amount ordered:- 11,200 lbs. D.D.T.. Amount used 10,176 lbs.  
262 galls. Diieldrin. " " 230 galls.  
an overestimate of approx.9% and 11% respectively.

Machines used:- Misto Sprayers.

Linear miles of river sprayed: 328 miles with D.D.T.  
55 miles with Diieldrin.

Rate of insecticide per mile:- 31 lbs D.D.T.  
4 galls. Diieldrin.

Vegetation:- varied from very heavy thicket to almost non-existent.

Compare two sections of river actually sprayed:-

Section A. veg. light to medium.

" B. veg. heavy.

A. 862 lbs D.D.T. over 41 miles of river. Rate:- 21 lbs/mile.

B. 1145 lbs D.D.T. over 26 miles of river. Rate:- 44 lbs/mile.

Labour:- Rate 3/5 per day, for camp building, road making (20 miles) and spraying. 6232 man/days, cost £1,064.

No information on further breakdown of costs.

Transport: M.D. 40 Tractor - 126 Hrs.  
Bedford 4 tonner - 1,485 miles.  
2 Landrovers - 10,674 miles.

Bida Township protection scheme. 1964-5 S.G.S.Z.

Tsetse: palpalis

The purpose of this scheme was twofold:-

1. Permanent eradication of tsetse from Bida township. Priority.
2. Experimental technique for Sudan Guinea Savannah Zone vegetation combining selective clearing and spraying.

Most of this work involved the clearing of indigenous vegetation combined with selectively clearing economic trees such as banana thinning, mango pruning, etc. Insecticide was applied to the remaining riverine vegetation after the cleared vegetation had been burnt.

1 spray team under the leadership of one Inspector (6 sprayers).

Date of spraying:- 20th January - 5th February, 1965 - 13 days.

Insecticide:- Dieldrin 20% E.c. as a 4% soln.

Amount used:- 158 gallons.

Machines:- "Colibri" pneumatic knapsack sprayers.

Linear miles of river sprayed:- 31 miles

Rate of insecticide per mile:- 5 galls. This varied from 3-7 gallons per mile on different sections of the river.

Vegetation. Indigenous: mostly cleared.

Economic: bananas, mangoes, palms, kolas, thinned and sprayed.

Labour:- 26 men for spraying; approx.  $13 \times 26 = 344$  man/days.

Rate:- 5/- per day; costs (for spray labour) £10-£14/mile.

Transport:- Bedford Kit-car only for field work.

No detailed information available for milages, etc.

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The following is a short account of spraying done elsewhere in Bauchi Province, N.G.S.Z. - S.S.Z.

<u>Insecticide</u>	<u>Strength</u>	<u>Amount used.</u>	<u>Miles sprayed</u>	<u>Rate/mile</u>
75% D.D.T. w.p.	5%	5,240 lbs	262	20 lbs.
"	"	168 "	6	28 "
Arkotine	5%	252 galls.	42	6 galls.
"	"	94 "	34	3 "
20% Dieldrin E.c.	4%	60 "	15	4 "
"	"	240 "	100	2½ "
"	2%	21 "	7	3 "



The following is an account of clearing and  
reslashing operations:-

<u>Clearing</u>	<u>miles of river</u>	<u>cost</u>	<u>man-days</u>	<u>L.Rate</u>	<u>cost rate/mile</u>
B ruthless	4	£60	1,439	5/-	£15
B "	1	£90	{ 1,800	3/-	-
partial	6	£180			
B ruthless	8	£208	1,467	3/-	£26
Bi selective clearing	18	£508	100 labs. for 2 mths.	5/-	£28
Bi ruthless	$\frac{1}{2}$	£125	-	5/-	£250
Bi selective	1	£22	-	"	£22
(Indigenous, leaving economic trees for spray.)					
Bi "	3	£21	-	"	£7

Re-slashing.

B	80	£250	1,666	3/-	£3
B	94	£350	1,400	5/-	£4
B	94	£300	1,527	4/-	£3
B	8	£18	91	"	£2
B	4	£13	64	"	£3
Bi	30	£292	100 labs. for 2 mths.		

B = Bauchi Province. Bi = Bida Township scheme.

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SIMULIUM CONTROL UNIT.

This Unit had the services of an Entomologist (U.K.T.A.) during the year, who after carrying out surveys advised on the various aspects of Simulium Control.

As mentioned in the previous reports, the Unit carried out Larviciding and Fly catching activities in the assigned areas, namely Abuja Division in Niger Province.

Larviciding: Preliminary re-surveys of the breeding places of S.damnosum were undertaken to determine the re-infestation of control rivers. The Larviciding period was from May to July. During these three months in all 91 treatments were given using 456.5 gallons of 25% D.D.T. concentrate to 18,244.5 cu.secs of river waters giving a mean concentration of D.D.T. as 0.8 parts per million of river water.

Flyrounds: Breeding Surveys carried out after completion of Larviciding showed that breeding had always been eliminated for about a 3-4 months period. But as soon as the rivers are flooded in mid-August re-infestation from the uncontrolled rivers followed.

The results of the Fly-rounds for 1965 are summarized below to compare with those of the previous year.

<u>Month</u>	<u>Flies</u>	<u>1964</u>	<u>F.B.H.</u>	<u>Flies</u>	<u>1965</u>	<u>F.B.H.</u>
		<u>B.H.</u>			<u>B.H.</u>	
JUNE	71	264.25	0.268	12	215.00	0.055
JULY	13	229.50	0.056	29	303.75	0.095
AUGUST	44	289.75	0.150	183	320.25	0.510
SEPTEMBER	329	258.75	1.270	139	274.75	0.505
OCTOBER	202	307.00	0.625	73	303.00	0.240
NOVEMBER	28	322.00	0.086	5	248.75	0.020
DECEMBER	15	245.50	0.061	3	287.75	0.010

From the table, it is evident that 444 flies were caught in Catching Period of 1,953.75 boy-hours, giving a mean S.damnosum density of 0.227 F.B.H. between June to December. In the same period in 1964 a total of 702 flies was collected in 1,916.75 boy-hours, giving a mean density of 0.366 F.B.H. This concludes that the 1965 Larvicidal programme maintained a high reduction in fly density.

Kaduna: Fly rounds were conducted at the usual points in the month of September 1965. 71 S.damnosum were caught in 185 boy-hours, giving fly density of 0.38 F.B.H.. S.bovis another man-biting species was found to be associated



with *S.damnorum* in large numbers. A total of 102 *S.bovis* flies was collected in the same catching period giving the density of 0.55 F.B.H. for that fly.

EPIDEMIC AND ENDEMIC DISEASES  
Cerebro-Spinal Meningitis.

10.

The incidence of C.S.M. appeared to have reached its lowest point in 1964. During 1965 there were more cases of C.S.M. than the previous year. Katsina and Sokoto were the Provinces which were affected the most. Katsina had 2,994 cases with 183 deaths and Sokoto had 2,693 cases with 265 deaths.

Comparative Provincial figures from 1963-1965 are given below:-

PROVINCE	1963		1964		1965	
	No. of cases	No. of deaths	No. of cases	No. of deaths	No. of cases	No. of deaths
ADAMAWA	97	17	40	9	52	18
BAUCHI	196	34	245	46	181	30
BENUE	49	9	30	5	26	9
BORNU	126	14	97	15	193	22
ILORIN	8	2	5	-	26	1
KABBA	35	13	14	4	21	1
KANO	234	40	284	20	664	68
KADUNA C.T.	11	3	131	10	57	4
KATSINA	364	25	365	35	2994	183
NIGER	30	1	37	3	86	5
PLATEAU	82	9	152	8	226	16
SARDAUNA	64	13	5	-	23	7
SOKOTO	1600	184	455	39	2693	265
ZARIA	139	45	172	28	241	21
T O T A L	3067	409	2027	222	7483	650

A new drug called "FANASIL" (ROCHE, RO 4-4393) which according to the manufacturers "..... attains high levels in the C.S.F., which persists for several days. In one trial the levels in the blood and C.S.F. eight days after a single injection were found to be greater than the minimum inhibitory concentration for the strains of Meningococci isolated during the trial." It was used for the first time in this Region by the Rural Medical Officer in Argungu, to treat patients in that area. Though the drug proved to be very useful when administered by a Medical Officer, further trials will be studied in subsequent epidemics before it is confirmed as the drug of choice to replace the existing drugs used by the Medical Auxiliaries in the field.

A careful analysis of the results of attempted prophylaxis with Sulphonamide in the past proved that, under ideal conditions, the drug was ineffective in preventing the spread of this disease. This year, in accordance with the recommendations of the World Health Organization, the use of Sulphonamide as a prophylaxis was limited to residential institutions such as boarding schools and prisons where the movement of the inmates could be restricted for at least three weeks.



11.1 The Rural Health Report for 1964 includes the Yaws report for the first 9 months of 1965 also, and hence there is very little for me to add.

11.2 Resurvey:

Approximately 1,105,665 people were examined during 1965. Out of 3,725 active cases detected there were 486 infectious cases of yaws. During the previous year 567 infectious cases amongst 25,687 active cases were detected out of 940,323 people examined.

Most of the cases were found in Igala-Idoma Divisions specially near the inter-divisional or inter-regional borders. It is hoped that with the continual efforts of W.H.O./Yaws Administration on the other side and Rural Medical Officer, Idah, on this side, the situation along the border will improve.

11.3 Dispensary Returns:

There was a drop in the number of infectious cases reported from dispensaries during 1965. Only 296 cases were reported this year in comparison to 875 cases reported in 1964.

The dispensary cases reported from Igala-Idoma Divisions during 1965 were 152, in comparison to 1964 and 1963 as 594 and 643 respectively. Out of the 152 cases, Idoma division reported 132, and Igala 20 only. This disparity may be due to the fact that in Igala division many people do not seek treatment at the dispensaries.

The tables on the next page gives the Yaws statistical return in detail for the years 1962-65.

11.4 Vaccination against Smallpox is also undertaken by the Yaws teams engaged in resurveys. During this year, 881,960 people were vaccinated by M.F.U. Staff during yaws campaigns. The rate of successful primary vaccination was about 85% which is satisfactory for field conditions in a tropical region.

11.5 During the yaws resurveys 2,509 new Leprosy patients were diagnosed by the M.F.U. Staff. These patients were referred to the nearest Leprosy clinics for treatment.

TABLE I

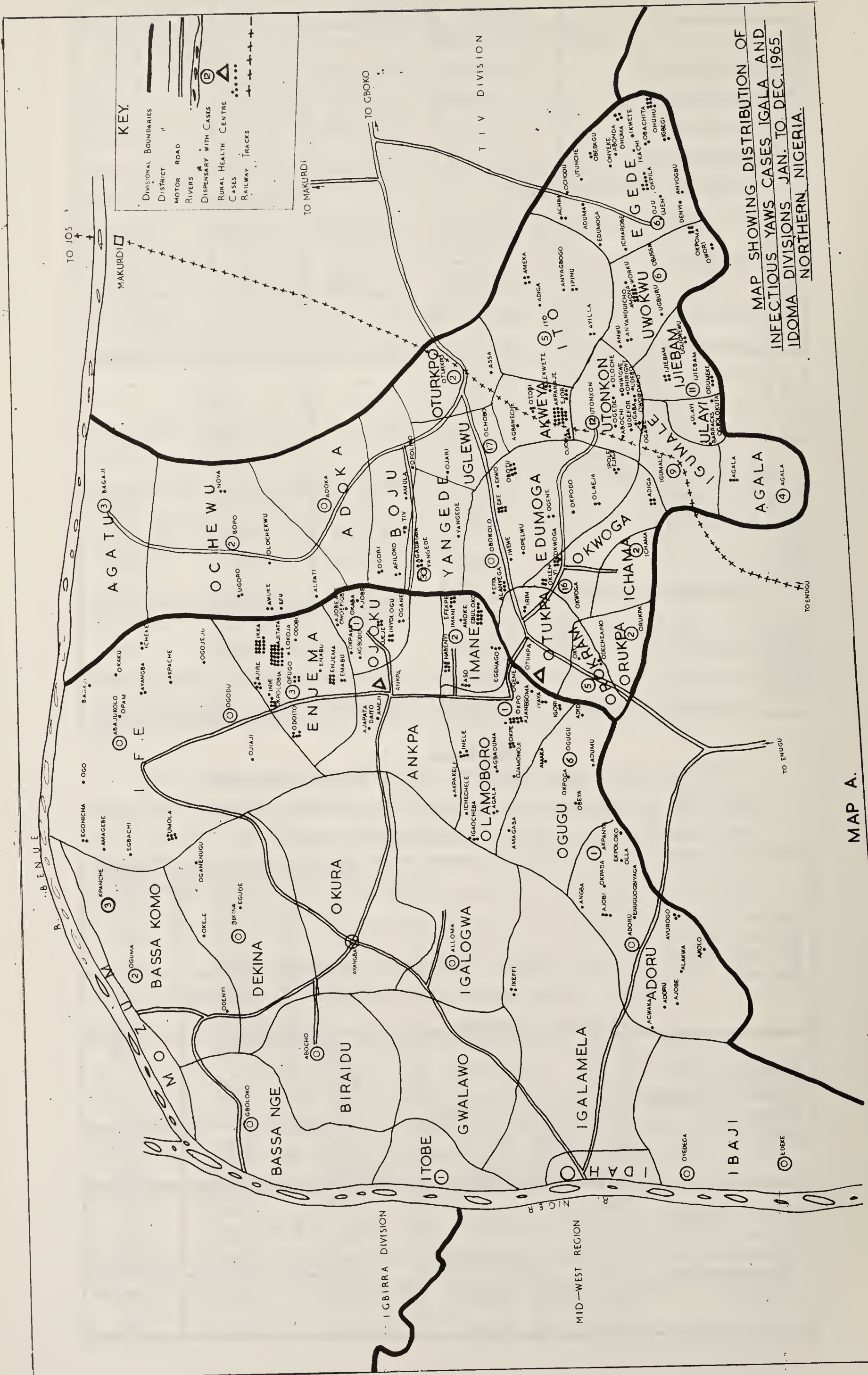
		1962	1963	1964	1965
Totals for all Teams	Persons examined	1,754,696	1,502,770	943,942	1,105,665
	All active	17,273	15,409	5,590	3,727
	Infectious	2,016	1,191	555	486
	Contacts	43,476	27,336	17,939	99,027
	Treatments given	165,236	42,772	23,529	117,032
Resurvey Teams	Persons examined	1,650,173	1,502,770	943,942	1,105,665
	All active	16,545 (1.0%)	15,409 (1.0%)	5,590 (0.59%)	3,727 (0.33%)
	Infectious	1,700 (0.1%)	1,191 (0.08%)	555 (0.05%)	486 (0.04%)
	Contacts	43,476	27,336	17,939	99,027
	Treatments given	61,236	42,772	23,529	117,032
I.T.S.	Persons examined	104,523	-	-	-
	All active	728	-	-	-
	Infectious	316	-	-	-
	Treatments given	104,000	-	-	-
Treatment Centres	All active	3,616	3,422	2,289	398
	Infectious	1,430	1,356	880	286
	Contacts	1,558	2,292	2,315	1,082
	Treatments given	5,174	5,714	4,604	3,765
Grand Totals	All active	20,889	18,831	7,879	4,125
	Infectious	3,446	2,547	1,435	772
	Contacts	44,934	29,628	20,254	100,109
	Treatments given	170,410	48,486	28,133	120,797

TABLE II

Infectious Yaws cases, 1963 - 1965; breakdown to show the prevalence of cases in Igala and Idoma and the striking fall in cases reported elsewhere.

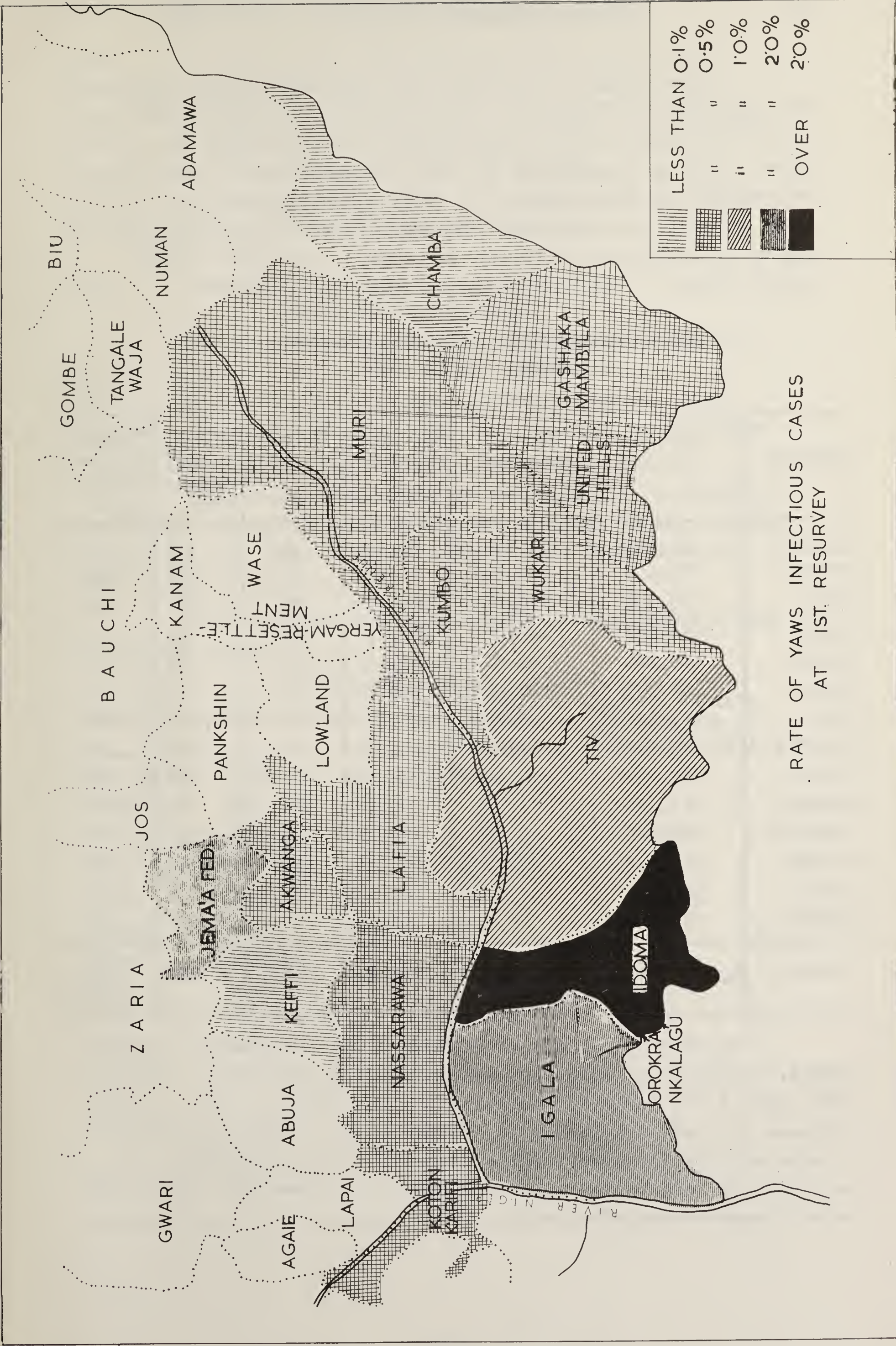
		1963	1964	1965
Infectious cases found by resurvey Teams:-	Igala	59	124	170
	Idoma	151	125	224
	Total Igala-Idoma	210	249	394
	All other areas	981	306	92
	Total all areas	1,191	555	486
Infectious cases reported from dispensaries.	Igala	49	80	20
	Idoma	384	265	132
	Total Igala-Idoma	433	345	152
	All other areas	923	530	144
	Total all areas	1,356	875	296
Total infectious (resurvey + dispensary cases)	Igala	108	204	190
	Idoma	535	390	356
	Total Igala-Idoma	643	594	536
	All other areas	1,904	836	236
	Total all areas	2,547	1,430	782





MAP SHOWING DISTRIBUTION OF  
INFECTIOUS YAWS CASES IGALA AND  
IDOMA DIVISIONS JAN. TO DEC. 1965  
NORTHERN NIGERIA.





RATE OF YAWS INFECTION CASES  
AT 1ST. RESURVEY



The control of Smallpox is the responsibility of the Urban Health Section of the Preventive Services Division of this Ministry. As the Rural Health Section plays an important role in carrying out mass vaccinations by the various M.F.U. teams engaged in other projects such as Yaws, a brief account of the Smallpox situation in this Region is tabulated below, and includes returns from Urban Health Units.

Total Vaccinations done and Smallpox  
Incidence during 1965.

PROVINCE	No.vac- cinated	No. inspected	No. Suc- cessful	% Suc- cessful	No.of cases repor- ted.	No.of Deaths repor- ted.
ADAMAWA	174,801	98,333	55,817	56.7	3	2
BAUCHI	189,654	118,876	70,823	59	222	20
BORNU	493,133	276,739	220,146	80	134	12
BENUE	638,403	440,207	221,951	50	46	6
ILORIN	109,084	82,000	56,149	85	33	1
KABBA	470,077	308,065	179,482	58	40	2
KANO	737,428	6,653	5,698	86	2,315	261
KATSINA	134,654	101,491	71,032	70	530	25
NIGER	670,791	417,040	340,093	81.5	159	11
PLATEAU	187,419	131,426	80,370	60	18	1
SARDAUNA	123,102	86,511	56,806	65.6	10	4
SOKOTO	287,808	228,776	195,645	85	498	35
ZARIA	568,997	218,679	157,750	72	42	7
KADUNA C.T.	152,380	95,341	56,084	59	11	2
TOTAL	4,937,731	2,610,137	1,767,846	67.7	4,066	393 (9.9%)

In 1963, as mentioned on page 96 of that year's report, 2,308,354 persons were vaccinated. In that year there were 1,495 cases of Smallpox with 124 deaths. The increase in cases and deaths in 1965 could be attributed to more anti-Smallpox activities carried out by the Rural health Staff, and better reporting of cases rather than an actual increase in infectivity.

13. RURAL HEALTH DEVELOPMENT PROJECT - IGALA -  
IDOMA AREA: BUILDING PROGRAMME GOVERNMENT.

13.1 It has already been mentioned that Rural Health Centres at Ankpa and Otukpa were officially opened during 1965. An allocation of funds is now available for construction of the third Rural Health Centre at Dekina, but the commencement of work depends upon the improvement of the access road to the proposed site of the Centre by the Igala N.A. whose action in this respect is awaited.

13.2 Building Programme - Native Authority  
Igala Native Authority.

The following districts in Igala Division belong to the Special Health Project Area:- Igalogwa, Olamaboro, Imane, Ankpa, Ojoku, Enjema Okura, Dekina, Biraidu, Mozum, Bassakomo, Bassange and Ife (which was included on September 1st, 1965):

The centre of activity of this area is the Government Health Centre at Ankpa from where a Rural Health Superintendent with his team of Medical Field Unit Assistants conduct the Health work.

The following N.A. dispensaries are situated within the Project Area:-

District	Dispensaries	M.C.H. Clinic with Midwife attached.	Infant Welfare Clinics run by Health Sister.
Igalogwa	Alloma	Alloma	-
Olamaboro	Okpo	-	-
Imane	Imane	-	Imane
Ankpa	Government	Rural Health Centre	
Ojoku	Okaba	-	Okaba
Enjema	Ofugo	-	-
Okura	Ayangba	-	-
Ife	Ogodu	-	-
"	Abejukolo	Abejukolo	-
Dekina	Dekina	Dekina	-
Biraidu	Abocho	-	-
Mozum	-	-	-
Bassakomo	Oguma	Oguma	-
"	Kanche	-	-
Bassange	Gboloko	Oboloko	-



No. of Dispensaries functioning	13	
No. of Dispensaries due completion or under construction	Nil	
No. of M.C.H. Clinics with Midwives attached.	5	
No. of M.C.H. Clinics due to open or under construction	Nil	
No. of Infant Welfare Clinics run solely by the Health Sister	2	
No. of qualified N.A. Community Nurses	2	} Total 3
No. of N.A. Community Nurses in Training	1	
No. of N.A. Midwives qualified	5	
No. of N.A. Midwives in Training	Nil	
No. of N.A. Community Attendants	5	

### 13.3 Idoma Native Authority.

The dispensaries previously constructed at Orukpa and Ichama, within the area served by Otukpa Rural Health Centre, were both opened during the year, completing the Idoma N.A. commitment in this respect - 8 dispensaries in the project area.

The following districts in Idoma Division are within the Project area:-

Orukpa, Orokam, Otukpa, Ichama, Okwoga, Edumoga, Oglewu, Akweya, Utonkon and Igumale.

The centre of activity here is also the Government Rural Health Centre at Otukpa, from where a Rural Health Superintendent with Medical Field Unit Staff carries out the health activities.

The following Dispensaries and M.C.H. Clinics are in this Project Area:-

District	Dispensaries	M.C.H. Clinic with Midwife attached	M.C.H. run by visiting Community Nurse.
Orukpa	Orukpa opened 29/6/65	-	-
Orokam	Orokam	-	Orokam
Otukpa	Government	Health Centre	-
Ichama	Ichama opened 26/6/65	-	-
Okwoga	Okwoga	-	-
Edumoga	Obokolo	-	Obokolo
Oglewu	Ochobo	-	Ochobo
Utonkon	Utonkon	Utonkon	-
Igumale	Igumale	-	Igumale

No. of Dispensaries functioning	8	
No. of Dispensaries due completion or under construction	Nil	
No. of M.C.H. Clinics with Midwife attached	1	
No. of M.C.H. Clinics due to open or under construction	Nil	
No. of M.C.H. run by a Community Nurse.	4	
No. of N.A. qualified Community Nurses.	1	} Total 3
No. of N.A. Community Nurses in Training	2	
No. of N.A. qualified Midwives	1	} Total 3
No. of N.A. Midwives in Training	2	
No. of N.A. Community Attendants	1	

#### 13.4 Personnel - Government.

There was a Rural Medical Officer based at Idah throughout the year.

Other Government Staff working in in the Project area and concerned with the Development Project and/or the Yaws Campaign are:-

- 1 Health Sister;
- 2 Community Nurses (at Health Centres);
- 2 Superintendents of Rural Health (in-charge Health Centres);
- 7 M.F.U. Junior Staff working at Health Centres;
- 11 " " " " on the Yaws Campaign partly in the project area;
- 2 Urban Health Superintendents - 1 entirely and 1 partly in the Project area;
- 15 Health Assistants mainly in the Project area;
- 1 Latrine construction crew, and
- 1 Workshop crew.

#### 13.5 Personnel - W.H.O.

A World Health Organisation Sanitary Engineer was available to advise and supervise the various schemes in planning and development of environmental sanitation until October, when he was transferred to the School of Hygiene, Kano. This was the first step towards broadening the extension of the Environmental Health Project.



IGALA N.A.	No.	IDOMA N.A.	No.
Qualified D.As	28	Qualified D.As	22
D.As in Training	3	D.As in Training	2
Qualified Midwives	9	Qualified Midwives	1
Midwives in Training	Nil	Midwives in Training	2
Qualified Community Nurses	2	Qualified Community Nurses	1
Community Nurses in Training	1	Community Nurses in Training	2
Community Attendants	9	Community Attendants	6
Health Inspectors	9		
Health Inspectors in Training	3		

13.7 Planning and Development of a comprehensive environmental sanitation programme in the Igala - Idoma Area.

Environmental Sanitation.

Water Supplies:

The position of the W.H.O./UNICEF assisted water supply to the Project as at ending 1965 was:-

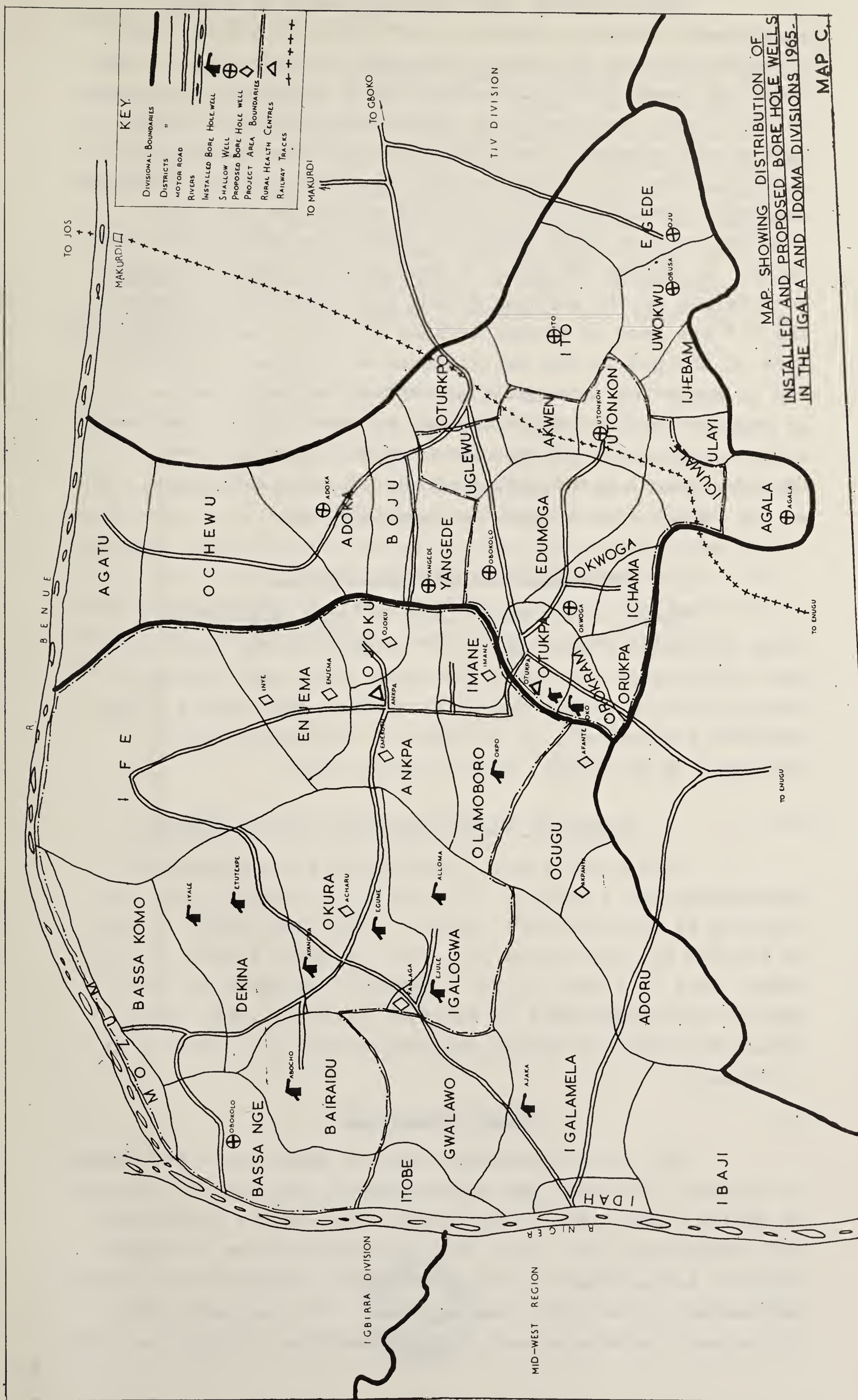
	Installed bore-hole wells functioning	Installed bore-hole wells not functioning	Bore-hole dug but not yet installed.
Igala Division	6	3	9
Idoma Division	2	1	4 (Govt. sponsored)

The main obstacle to the completion of installation of the wells in the Igala Division has been the lack of finances on the part of the Igala Native Authority to provide funds for the construction and maintenance of the water supplies in the Division for which UNICEF has supplied generator sets and pumping equipment.

The attached map (Map C) shows the distribution of installed shallow and proposed wells in the project area, 1965.

Surveys:

Sanitary surveys conducted in Ankpa, Otukpa and Dekina district by the W.H.O. Sanitary Engineer and the Government Health Staff were completed.





These surveys were rendered possible because experienced Sleeping Sickness Staff from the nearby Gboko Sleeping Sickness Unit were available for this work as they could not carry out S.S. Surveys due to disturbed conditions in that area. Latrine slabs constructed at Ankpa Health Centre by a permanent team are to be sold to the public at a nominal cost of 10/- per slab. Mr. Pinto (W.H.O. Sanitary Engineer) considered that hand-dug salgas are the best type for much of Igala division, where the soil is soft and sandy. At Otukpa the soil is much harder, and it is hoped to make use of the latrine boring equipment here; however, the Village Head of Otukpa refused to have a latrine (provided free of charge) in his own compound as an example to others, and it seems that energetic and effective health education is required before any systematic excreta disposal programme could be developed in this area. Model latrines have, however, been constructed, entirely of local materials, at the Health Centres and the local schools.

#### Community Planning and Housing:

Three model houses made of local materials, in three different sizes but all of remarkably low cost, have been constructed on a plot for Ankpa Town, away from the rapidly eroding slopes nearer the river, and present a very pleasant appearance. It is hoped to construct similar buildings on the Otukpa Health Centre site.

13.8

#### Community Nurses Training Centre, Kaduna.

During the year, 7 students sat the prescribed examination and 7 passed. A total of 25 students were in training at the centre at the end of the year 1965. A sum of £48,000 has been voted for a new teaching school, a multi-storey Unit, for the C.N.T.C., Kaduna. It would be sited near an open space next to M.A.T.S., Kaduna. This will permit an intake of thirty students a year as against 9 as at present.

13.9

#### Health Education.

The Health Education Unit at Zaria which was opened in October 1964 under the supervision of the Medical Officer of Health, Zaria, was fully established and has functioned with tremendous zeal. The Unit prepared posters on health subjects and arranged lectures on health education at various medical and educational institutions. It also participated in various conferences and society meetings to facilitate the

effective dissemination of knowledge of health matters amongst the general public.

The first intensive Health Education Survey was conducted in Kunkuyi, a village 14 miles from Zaria on the Kano Road, to ascertain the Health needs and interests of the Community. This was, therefore, a preliminary survey of fact-finding among a population of 6,174. There were many items covered by the Survey. Dr. N.F. Blitz of the Institute of Administration of Ahmadu Bello University, Zaria is analysing the data, the result of which is awaited. He also gave technical advice throughout the period of the Survey.

A display by the Parasitology and Entomology Section of the Mass Malaria Control Campaign Team was presented during the Agricultural show at Birnin Kebbi in early March 1965. A Landrover equipped with a public address system and with some large posters informed the public on spraying activities in the area, and what co-operation they can extend, e.g. construction of roads good enough for the passage of Landrovers from their villages to the **main roads** and to try and keep these roads in good condition.

















